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RUPTURES AND TEARS OF MUSCLES AND TENDONS OF THE LOWER EXTREMITY

REPORT OF FIFTEEN CASES

EDGAR LORRINGTON GILCREEST, M.D.

SAN FRANCISCO

Ruptures and tears of various tendons and muscles of the body are not so rare as is supposed generally. I have mentioned the literature pertaining to ruptures of the long head of the biceps in three articles [1] on that subject. Little is to be found concerning such lesions in American or English medical literature. Even less has been written on similar lesions in the lower extremity, which I shall consider in this paper. Many patients with such injuries are treated for weeks or months for sprains, arthritis, neuritis or similar disabilities. In a great majority of these cases, if the rupture is extensive, an accurate diagnosis and surgical repair will not only improve the ultimate function of the limb but return the patient to activity much sooner than the usual conservative measures.

ETIOLOGY

Any one of many factors may cause a tear or rupture in a muscle or tendon, as shown in the following outline:

1. Senility.
2. Pathologic Changes:
   (*a*) Arthritis.
   (*b*) Myositis.
   (*c*) Acute infectious disease.
   (*d*) Arteriosclerosis.
   (*e*) Syphilis.
   (*f*) Tuberculosis.
   (*g*) Neoplasm.
3. Physiologic Predisposition.
4. Occupation.
5. Fatigue.
6. Trauma:
   (*a*) Indirect.
   (*b*) Direct.

Naturally, almost the same factors produce tears or ruptures in the lower extremity as in the upper extremity. The exception is the tendon of the long head of the biceps brachii, which, as a result of its passage through the shoulder joint, is different from any other tendon in the human body. No one will deny that fatigue, or senile or pathologic changes in muscles or tendons predispose toward rupture. Occupation is always a factor in the production of ruptures. Of the greatest interest are the muscle ruptures occurring in healthy young persons, more particularly those ruptures which result from indirect trauma.

MECHANISM

Although there are a few cases reported of muscles or tendons having ruptured in a flaccid state, in most instances the severance occurs when the muscle is in strong contraction and a group of antagonistic muscles are brought into action. In most instances it occurs when there is a surprise or unexpected movement and a lack of coordination. This will be discussed more in detail on certain muscles. As early as 1882, Madyl [2] in a very comprehensive article analyzed and classified the different mechanical conditions that may cause a muscle to tear, and Brickner [3] has presented this scheme in outline form as follows:

Muscles tear as a result of:

I. Muscular action:
   A. Flaccid:
      1. Contraction of antagonist.
      2. Passive stretching.
   B. Contracted muscles:
      1. Active contraction.
      2. Contraction of antagonist.
      3. Increase of tearing over cohesive power.
      4. Asynchronic contraction: (*a*) Inner part against outer (as in bifid muscles). (*b*) Distal part against proximal part.
      5. Additional muscular force of another muscle.

II. External trauma.

III. Spiral twists of limb.

IV. Degeneration of muscle as in disease and in neurologic conditions.

SITES AND ORDER OF FREQUENCY

Grassheim,[4] working with Professor Liniger over a period of five years, collected 500 cases of indirect muscle and tendon tears; he said that he found the site of the lesion to be different from that usually reported. He found that the calf muscles came first in frequency, then the extensors of the leg, the biceps of the arm, the achilles tendon and, last, the extensor of the thumb. Madyl collected sixty-one cases of tears of the quadriceps muscle and fifty-seven of the patellar liga-

From the Department of Surgery, University of California Medical School.

Read before the Surgical Section of the California Medical Association at Pasadena, May 3, 1932, and before the Pacific Northwest Medical Association, Spokane, Wash., June 29, 1932.

1. Gilcreest, E. L.: Rupture of Muscles and Tendons, J. A. M. A. **84**: 1819 (June 13) 1925; Two Cases of Subcutaneous Rupture of the Long Head of the Biceps Flexor Cubiti, S. Clin. North America **6**: 539-554 (April) 1926; The Common Syndrome of Rupture, Luxation and Elongation of the Biceps Brachii: An Analysis of Thirty-Three Cases, to be published.

2. Madyl, Karl: Subcutaneous Muscle and Tendon Ruptures, Deutsche Ztschr. f. Chir. **17**: 306, 1882; **18**, 1883.

3. Brickner, W. M., and Milch, Henry: Ruptures of Muscles and Tendons, Internat. Clinics. **2**: 94 (June) 1928.

4. Grassheim, Kurt: Die Indirekten Muskel- und Sehnenrisse in der Unfallmedizin, Monatschr. f. Unfallh. **29**, 1922.

ment—in all, 118 cases—and 103 ruptures of muscles in the upper extremity and trunk. When all the cases of back sprains are considered, as well as the so-called cases of lumbago, one must realize that many of these

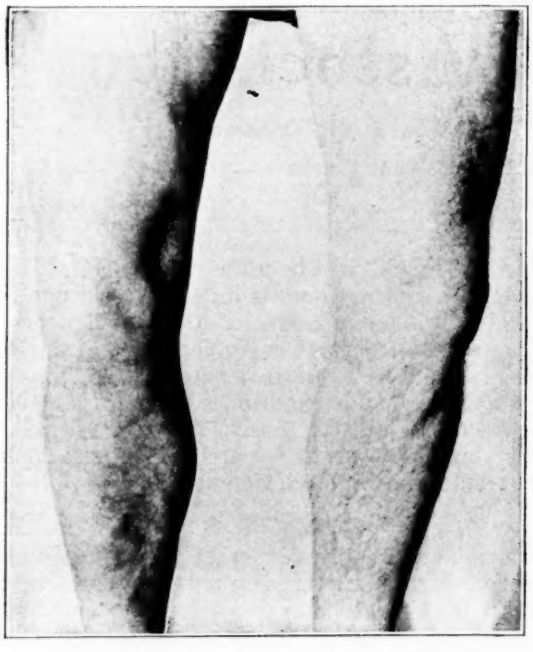

Fig. 1 (case 1).—Partial rupture of the vastus internus muscle.

patients are actually suffering from tears in the deep back muscles or fascia.

RUPTURES INVOLVING THE EXTENSORS OF THE KNEE

Ruptures involving the extensors of the knee are undoubtedly most serious as they concern the entire function of the leg. A few points concerning the anatomy and action of these muscles should be mentioned.

Anatomy.[5]—The patella is held in place, i. e., from going outward, by two anatomic structures: first, the bony prominence of the external condyle of the femur and, second, the almost horizontal arrangement of the fibers of the vastus internus. If this bony prominence fails to develop, there is a true congenital dislocating patella, a condition first recognized and described by Mr. H. O. Thomas of Liverpool. He corrected this condition by striking the external condyle with a hammer, thus producing a periostitis with resulting bony formation. Sir Arthur Keith mentions it in his book "The Menders of the Maimed." The acquired form of dislocation leading to instability of the knee follows derangement of the vastus internus muscle either by traumatic rupture or by paralysis following anterior poliomyelitis.

Action.—The vastus internus, the vastus externus and the crural muscles are the extensors of the leg. The isolated contractions of each of the two vasti tend to draw the patella laterally and to dislocate it. Normally the synergistic action of these two vasti counteracts this lateral movement. It is important to note that the total contraction of the external vastus tends to displace the patella posteriorly by effacing the obtuse angle, opened posteriorly, which the muscle forms with the patellar tendon.[6]

According to Grassheim, four lesions in this region are to be differentiated: a tear in the quadriceps itself; a tear of the tendinous sheath above the patella; a tear of the ligamentum patellae, and a tearing away of the tibial tuberosity, usually occurring in growing young people. Most frequently the tendon tears directly through, above the kneecap.

These lesions are produced in one of two ways: First, a person starts to fall, holds himself straight with difficulty and, at that instant, feels a violent crack in the leg and falls; or, second, he falls on a strongly flexed knee and, as a result of the counter leverage, tears the muscle or tendon and occasionally even fractures the patella.

There is an immediate hemorrhage which involves the knee joint. The patella is found to be abnormally movable and floats. Extension of the leg is either limited or impossible.

If the tear is only partial, conservative measures may be tried, particularly in elderly persons. If the tear is extensive or complete, especially in a young person, surgical repair should be done immediately. Whether the treatment is conservative or surgical, it should be borne in mind that of all the muscles of the human body the quadriceps undergoes the most rapid atrophy. Massage and faradization should be begun at the earliest possible moment in an effort to prevent this disabling condition.

Figure 1 (case 1) shows clearly a partial rupture of the vastus internus. It is interesting to note that the patient complained of considerable aching in the region of the inner aspect of his knee, for which he had received physical therapy for almost a year without

Fig. 2 (case 1).—Same as figure 1 after operation.

appreciable benefit. After the operation he was discharged as cured in four months.

Cases 2, 3 and 4, all complete ruptures of the quadriceps tendon, reveal how disabling such injuries are and how imperative is surgical intervention. Case

5. I am indebted to Dr. J. B. de C. M. Saunders, assistant professor of anatomy, University of California Medical School, for his kindness in demonstrating to me his anatomic dissections of this region and for supplying the explanation.

6. Testut: Traité d'anatomie, Paris, 1924.

2 was one not only of rupture of the quadriceps tendon but also of fracture of the patella. Some consider fracture of the patella and tear of the quadriceps tendon as analogous injuries; indeed, as Brickner points out,

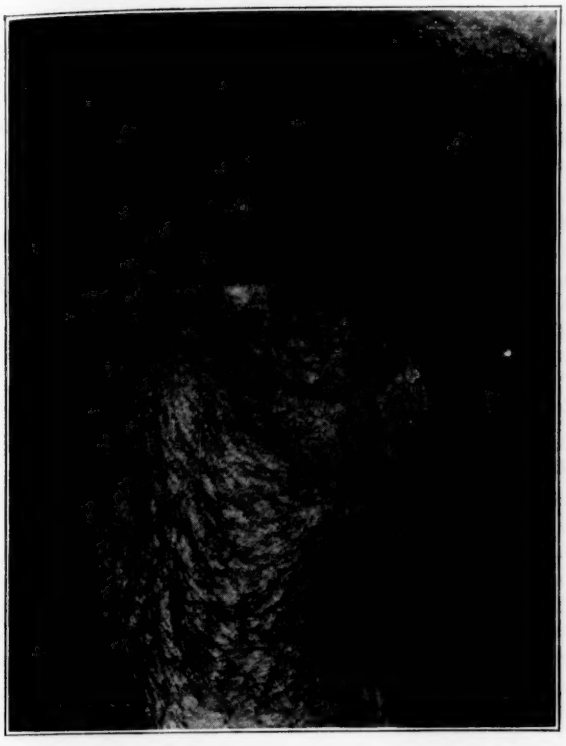

Fig. 3 (case 5).—Partial rupture of the rectus femoris and vastus intermedius muscles.

"fracture of the patella is usually accompanied by more or less extensive tear of the aponeurosis on each side." In fact, he states that "the patella is more apt to break than the tendon" and he quotes Sonnenschein [7] as stating that in his service in a five year period he had fifty-one cases of fracture of the patella and four of rupture of the quadriceps.

Rectus Femoris.—This muscle, together with the vastus externus, crureus and vastus internus forms the quadriceps extensor (m. quadriceps femoris). The two heads of origin, bound together by a band of fascia, give rise to a single tendon. It is from this tendon that the muscular fibers spring, and it is here, at this tendo-muscular junction, where the tensile strength is doubtless the weakest, that the rupture occurred which is shown in figure 3 (case 5). Although the lesion in this muscle was much higher than that in case 1, this man complained definitely of weakness and aching in the knee. It is these joint symptoms in muscle and tendon tears that often mislead the surgeon, so that he directs his attention and treatment to the knee. In most cases after surgical repair the joint symptoms will subside entirely, or at least to a great extent. This man was not operated on, as the lure of a money settlement, in this period of financial depression, loomed so large in his estimation that he accepted it instead of an opportunity to have a better limb.

The four elements composing the quadriceps extensor muscle have been discussed. Their ultimate insertion is into the tibia by means of the ligamentum patellae and the lateral ligaments of the patella. It is evident, therefore, that a rupture of this ligament immediately causes a retraction of the patella upward by means of contraction of the strong muscle group above. Case 6 was one of complete rupture and case 7 of partial rupture of this ligament. Both cases were treated surgically with satisfactory results. Case 8 is also one of partial rupture of the ligamentum patellae as well as of the external ligaments of the right knee.

RUPTURES INVOLVING THE FLEXORS OF THE KNEE

Semitendinosus.—Subcutaneous tears or ruptures of this muscle are very infrequent. Only a few cases have been reported in the literature. This muscle, together with the semimembranosus and gracilis, form the internal hamstring tendons; the biceps cruris, the external hamstring. This group together with the sartorius, gastrocnemius, plantaris and popliteus constitute the flexor group. This group is more powerful in its action than the extensor group. Joint symptoms often arise immediately when one of the powerful and important flexor muscles is torn. Case 9 (fig. 4) is an example of this. One of this man's chief complaints was pain in and about the left knee. Although he was an elderly man and in feeble health, a reparative operation afforded him considerable relief and got rid of the conspicuous bulging in the posterior aspect of the thigh.

Inner Head of Gastrocnemius.—Figures 5 and 6 (case 10) show a rupture of the inner head of the gastrocnemius. The mechanism of the injury is interesting. It will be noted that it was caused by a spiral movement with the foot stationary, the body turning clockwise on the left knee. The patient, as most of the others, complained of pain in his knee joint and unfortunately was treated for a long time by conservative

Fig. 4 (case 9).—Partial rupture of the semitendinosus and semimembranosus muscles.

measures. In fact, a year elapsed before surgical intervention, which was the only hope for any degree of improvement. Naturally, in the meantime, the muscle belly had dropped down and there was much contraction, which made the delayed repair increasingly

7. Sonnenschein, H. D.: Rupture of Quadriceps Tendon, M. J. & Rec. **125**: 316 (March 2) 1927.

difficult. Case 11 is one of a partial rupture of the inner head of the left gastrocnemius, which was due to almost the identical mechanism as in case 10; that is, a spiral movement of the body with the left foot held stationary. Further details of this injury are given in the report of cases at the end of the article.

RUPTURES OF THE CALF MUSCLES

The calf muscles form a group that is "designed for use in walking and to compensate for the greater length

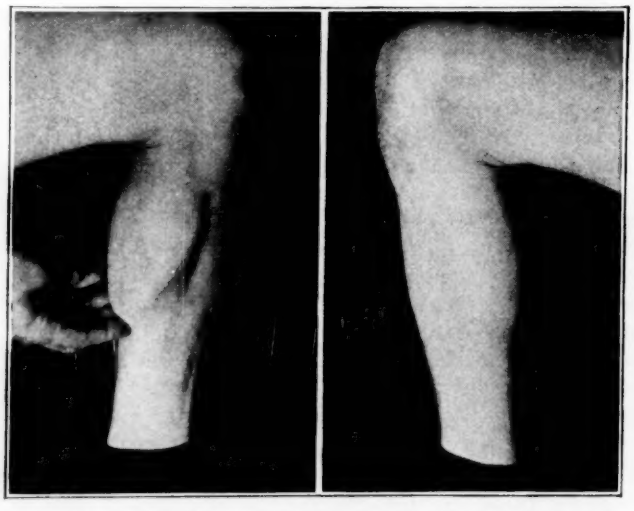

Fig. 5 (case 10).—At left, partial rupture of the medial head of the left gastrocnemius muscle. The belly of the muscle protrudes even when the leg is relaxed. At right, right leg as comparison. (Figures 5 and 6 were supplied by Drs. Everingham and Hitchcock.)

of the foot anterior to the center of motion at the ankle and its shortness posteriorly. They are superficial and attach below through the tendoachillis to the os calcis." [8]

There is a well recognized condition known as "tennis leg" which is considered usually a rupture or a tear of the plantaris, but according to Brickner the calf muscles themselves also may be involved. According to other authors, "tennis leg" includes tears even of the achilles tendon.

The history of these cases is typical. It seems that at the time the player springs or attempts to spring, or suddenly turns the body with legs held straight, he produces a sort of spiral twist of the muscles. Tennis players feel a surprising, sudden pain in the calf, as though hit by a stone, and fall to the ground. Momentarily they are of the impression that they were hit by a stone. They think that the fall ruptured the muscle, but the rupture was primary.

Plantaris (case 12).—I had an opportunity to see recently, only a few moments after it occurred, what I believe to have been a rupture of the plantaris in a man who sustained this lesion on his way to my office. He was convalescing from a fracture of the left patella for which I had operated on him several months before. The mechanism of this second injury was as follows: He was standing on the curb waiting for a street car. When the street car approached, he stepped from the curb with his good foot and as soon as it reached the ground, and his weight was supported by his toes in the foot movement of the step forward, he felt a sharp pain in his right calf and fell to the ground. Further details are given in the history of his case.

8. Davis, G. G.: Applied Anatomy, ed. 4, Philadelphia, J. B. Lippincott Company, 1916, p. 548.

RUPTURES OF THE ACHILLES TENDON

Mechanism.—A sudden strain on the tendon as in forceful and forced dorsiflexion of the foot may cause a (more or less complete) rupture of the tendon. Infections occasionally, especially syphilis, may undermine the resistance of the tendon. Age and overweight seem to be more important factors in producing this lesion than elsewhere in the body. Both of these conditions diminish the normal resilience of the tendon.

Occupation.—This plays a prominent part, as it occurs not infrequently in boxers, mountain climbers, baseball or tennis players and occasionally dancers. Cases are well known in boxers trying to dodge a blow by shifting their body backward and jumping on their toes with knees bent, so that the tendon is much stretched; in persons who slip, begin to fall, and try to keep their balance by bending their knees and raising their heels; and in mountain climbers.

Treatment.—Incomplete tears respond favorably and quickly to conservative measures. The ankle joint should be held in semiplantar flexion so that the tendon is placed at rest. Elevation of the heel for a short time will afford relief and make walking less uncomfortable. Under no condition should a tight bandage be placed round the heel cord. This has been emphasized by Oppenheimer,[9] who reported a case of vicious union of the ruptured tendon to the posterior part of the capsule of the ankle joint and to the posterior surface of the lower third of the tibia following the application of a tight adhesive dressing. Complete rupture should be repaired surgically.

Case 13 is that of a girl, who, while leaping into the air with one leg, had suddenly shifted all her weight on the toes of the other foot and, as a result, ruptured the achilles tendon.

Case 14 is that of a man whose tendon was ruptured when his right foot became tangled in the rungs of a

Fig. 6 (case 10).—Same as figure 5 after operation.

ladder from which he had fallen, so that the foot was violently and forcibly dorsiflexed. The violence that produced this rupture was such that the tendon was found to be very much shredded, as if the force that tore it (in this case the weight of the body hanging from the ladder), instead of acting suddenly, acted forcibly and for a long period.

9. Oppenheimer, E. D.: Spontaneous Rupture of Achilles Tendon with Vicious Healing to Tibia and Ankle Joint, J. A. M. A. **84**:749 (March 7) 1925.

Case 15 is another classic case of rupture of the achilles tendon when the foot is suddenly brought into extreme and powerful dorsiflexion, which occurs rather frequently in baseball players.

SUMMARY

1. Partial or complete ruptures (tears) of the muscles and tendons of the leg occur more often than is supposed generally.

2. An early diagnosis should be made if possible. Joint symptoms, particularly in the knee, should not mislead one in the diagnosis.

3. Early surgical repair in extensive or complete tears saves much time and gives a much better ultimate result.

4. The prognosis usually is good if proper treatment is given early.

REPORT OF CASES

CASE 1.—*History.*—B. M., a man, aged 50, was injured, Oct. 1, 1926, while riding a horse. His mount slipped and fell, and the patient's leg was caught under the horse, causing agonizing pain. Instantly the thigh became greatly swollen. He was able to hobble, with the aid of a stick, for a distance of about 1,200 feet. For the next two weeks he stayed in bed and received "home treatment," consisting of iodine, hot water and liniment. Most of the inside of his leg turned blue. He then consulted a physician, who prescribed hot applications, alcohol and liniment.

At that time his chief complaint was soreness just above and toward the inner surface of the right knee and just above the knee on the flexor surface. During this time much of the soreness on the back of the knee had ceased, and he stated that the soreness on the inner side had continued unabated. He received physical therapy for about nine weeks. After that he gave himself treatments at home with hot towels and rubbing three times a day for ten days but discontinued them as he could see no improvement. He stated that this soreness made his leg weak and that while walking his leg "caught" just above and to the inner surface of the knee. He described this "catch" as a feeling comparable to a knee locking from a slipping cartilage.

Examination.—Sept. 8, 1927, there was slight atrophy of the muscles of the right thigh. About 7 cm. from the knee joint there was a conspicuous concavity instead of the normal convexity. Pressure over this concavity revealed little resistance; the patient said that the soreness was at that point.

The diagnosis was partial severance of the vastus internus muscle.

Operation and Result.—Sept. 13, under local anesthesia, a curved incision was made over the lower and inner aspect of the right thigh. The fascia and muscles were found to be densely adherent. All the underlying tissues were dissected and no evidence of the sartorius muscle was found. The concavity was caused by a partial severance of the muscles of the inner and lower aspect of the thigh; i. e., the vastus internus, gracilis and semimembranosus. The two latter muscles were lifted up and sewed to the vastus internus. The fascia over these muscles was plicated to double thickness for a distance of 3 or 4 inches. The skin and subcutaneous tissue were closed. The cosmetic result was perfect and the concavity was obliterated entirely. By January, 1928, the patient said that, as far as he could tell, his leg was perfectly well. Examination revealed that his leg had filled out and the muscles appeared to have good tone. He walked well without a cane.

CASE 2.[10]—*History.*—S. E., a boy, aged 16 years, was injured first about April 1, 1927. While playing football, the patient was struck above the knee and two weeks later he was hit again in the same place. June 13, 1929, he fell down stairs and injured his knee.

The chief complaints were (1) limitation of flexion since the first injury, (2) limitation of motion in the left knee, and (3) swelling in the left thigh.

Examination.—On the left thigh, 4 inches above the knee, there was a firm mass, the size of an orange, deep under the muscle, held in position by the surrounding muscles. The knee could be flexed 20 degrees. The left patella was larger than the right. There was some fluctuation about the patella and in the joint.

The diagnosis was (1) rupture of the left quadriceps muscle, (2) fracture of the left patella, and (3) calcified submuscular hematoma of the left thigh.

Operation and Result.—July 10, 1929, operation disclosed a complete separation of the tendon from the upper border of the patella, with slight fracture of the patella and a small fragment of bone contained in the tendon laterally. Much old blood was removed from the quadriceps pouch. The patella and infrapatellar tendon were freed somewhat to allow for some traction upward. Drill holes were placed through the patella, and a mattress suture of heavy braided silk was put through the drill holes and the quadriceps tendon. The remainder of the tendon repair was made with figure of 8 sutures of number 2 chromic catgut.

The outer surface of the thigh at the junction of the middle and the lower third was exposed through the fascia lata. Honeycomb bone, superficial to periosteum and contained in a thin membrane, was removed. The area of periosteum left scarred was covered with a piece of fascia lata taken from the thigh and sutured to the periosteum with number 2 chromic catgut. The usual closure was made by layers. Dry dressings were applied. A Thomas splint was applied with the leg in extension.

The patient made an uneventful and satisfactory recovery.

CASE 3.[10]—*History.*—C. C., a youth, aged 18, twisted his right knee in November, 1926, while playing football. On the advice of a physician he remained in bed for several weeks. After he got up he fell down stairs and "tore the ligaments" of the same knee. Following this, he had considerable pain and swelling of this knee (more so than when injured previously) and was able to bend the knee only with difficulty. He was kept in bed for several weeks and hot epsom salt compresses were applied. After that time, though he had moderate pain, he limped about with the aid of a cane. Several times he twisted and strained his leg again and had to stay in bed. In December, 1927, the knee became more painful.

The diagnosis was traumatic rupture of the right quadriceps tendon of one year's duration.

Operation and Result.—Jan. 10, 1928, an incision 20 cm. long was made over the lower anterior portion of the femur. The tendon of the quadriceps was sutured to the patella with heavy kangaroo tendon to approximate the tendon to the patella and to permit sutures of number 2 chromic catgut to be applied. The kangaroo tendon then was taken away. A cast was applied to the leg in extension.

The patient made a good recovery from the operation and was much improved.

CASE 4.[10]—*History.*—R. S., a woman, aged 35, while bending over, Aug. 6, 1926, felt a pain in her right knee and thought she had sprained it. A physician applied a splint for one month and then reapplied it for three weeks more.

Examination.—The patient was unable to extend her right leg, although she could flex it readily. Her leg was weak, and she limped. When walking, she threw her foot upward from the hip.

The diagnosis was rupture of the right quadriceps femoris tendon.

Operation and Result.—October 17 a transplantation of the right biceps femoris tendon into the patella was done, since the tendon of the quadriceps was so frayed that suture was impossible. The skin was then dissected back on the lateral side to the biceps muscle. This was freed from its attachment, brought up through an opening in the fascia lata, and sutured with heavy braided silk to the tendon of the patella.

The patient made an uneventful recovery from the operation and secured a satisfactory result.

CASE 5.—*History.*—D. A. J., a man, aged 38, was injured, Dec. 15, 1930, while working as a mucker. His left thigh was crushed between a car and the pipe, which extended along the

10. The author is indebted to Dr. Howard H. Markel for the report of this case.

side of the tunnel; the force was sufficient to bend the blade of a knife which he had in his pocket. There was some improvement after the injury, but his recovery was not complete. He complained of (1) tenderness, sensitiveness and numbness over the upper front part of the thigh; (2) weakness of the left thigh and knee after walking for a distance (the weakness of the knee was especially evident in climbing); (3) cracking sounds in the left knee when bending it as in walking upstairs or uphill; (4) a feeling of tightness in the muscles of the left thigh and above the knee; (5) heaviness of the entire left limb, which he described as "feeling old," and (6) a disturbance of the circulation in the leg, which had produced a swelling of the veins of the ankle and foot.

Examination.—Oct. 28, 1931, there was a marked venous circulation of both lower limbs, with three or four small healed ulcers the size of a dime (18 mm.), a result of chickenpox, over the internal lower aspect of the left leg and the outer aspect of the left foot. Dilatation of the superficial veins of the lower third of the left leg, ankle and dorsum of the foot was evident.

At the upper anterior third of the left thigh was seen a marked bulging, almost the size of a hen's egg, which became more evident when the anterior thigh muscles were brought into action, such as, for example, when the patient stood erect and contracted this anterior group of muscles or when the thigh was brought up into complete abduction. There was a conspicuous depression above this bulging corresponding to a definite gap of the underlying anterior rectus muscle and femoral aponeurosis. This depression was tender to pressure.

There was apparent atrophy of disuse of the left thigh, which was confirmed by measurement. There was slight fine crepitus in the right knee and coarse crepitus in the left knee. There was a slight swelling of the posterior aspect of the left ankle.

From the history and examination in this case it seemed evident that he received a severe crushing injury to the upper anterior third of the left thigh, followed immediately by the formation of an extensive hematoma beneath the left anterior muscle planes. This resulted in a partial rupture of the rectus femoris muscle and a small portion of the vastus intermedius muscle. In addition, he had traumatic phlebitis of the long saphenous vein. Subsequently fibrosis in the region of the crushed area occurred, resulting in a tender scar which, on contracture, lessened the elasticity of the portion of the muscle that was crushed. This in turn accounts largely for the partial limitation of flexion of the knee.

The patient declined an operation and requested a settlement from the insurance company.

CASE 6.[10]—*History.*—W. L. T., a man, aged 39, disabled, May 25, 1923, felt a sudden, severe pain in the left knee as he began to jump. His jump ended in a collapse, with his left knee flexed under him. After the usual course of splinting and massage for two weeks, he noticed that his kneecap appeared to be displaced above its usual position.

Examination.—The patient could not extend his left leg below the knee. The left patella was displaced upward about 1½ inches. The quadriceps muscle was much more flabby than that of the other leg. There was no tenderness or swelling.

The diagnosis was rupture of the left patellar ligament.

Operation and Result.—The ligamentum patellae was ruptured obliquely about 1 inch above its insertion, June 15. The patella was pulled down, and the ruptured ligament was sutured.

The patient made a good recovery and was much benefited.

CASE 7.[10]—*History.*—Miss E. C., aged 22, seen, Oct. 18, 1930, had had acute poliomyelitis when 18 months of age, and at that time she dislocated her left hip by falling. She had had several operations: a reduction of the hip in 1925, a triple arthrodesis of the left foot in 1927, osteotomy of the right tibia, and tenotomy of the extensor tendon of the right small toe. She had also had a transplantation of the inner flexors of the thigh. After all this surgery she was able to walk about with a brace and cane. About Oct. 8, 1930, she fell on her right knee and thereafter was unable to walk so well as before.

Examination.—There was almost complete paralysis of the left leg and foot. However, she had a slight ability to flex her leg or her thigh because of the transplanted internal flexors and to rotate the leg externally. There was palpable separation of the patellar ligament from the patella. There was lateral bowing of the right tibia but the alinement was good; the foot showed marked talipes cavus and the toes were in a claw position.

The diagnosis was (1) partial rupture of the ligamentum patellae, and (2) residual poliomyelitis.

Operation and Result.—October 25, a curved incision 8 cm. in length was made over the lateral surface of the leg, extending from the patella to the tibial tuberosity. The ligamentum patellae was not ruptured but was very thin and was stretched so that only a few fibers held it in position. With medium braided silk the ligament was plicated and held in the stretched position toward the tuberosity. The suture apparently held firmly. The wound was closed. Dry dressings were used and a cast was applied with the leg extended.

The patient's course was uneventful, and she was able to walk as well as before the accident.

CASE 8.[11]—*History.*—Mrs. M. E., aged 32, struck both her knees forcibly in January, 1932. As a result of the accident her knees became swollen, and she was confined to bed for several weeks; since that time she had been unable to work on account of the following complaints: (1) weakness of the right lower extremity, which made it necessary, when climbing stairs, to grasp the quadriceps group just above her knee; (2) pain in the external side of the right thigh, extending from 4 cm. above the patella almost to the level of the great trochanter whenever she stood, walked or climbed stairs.

Examination.—There was a slight puffiness in the region of the patellar tendon and slight tenderness on pressure over the attachment of the tendon to the patella, with a definite palpable indentation of the tendon in this area. This indentation was more apparent on contraction of the quadriceps muscle. When in the erect position, bending her knees to an angle of about 45 degrees elicited a very definite crackling and tearing sound, and a creaking sensation was felt by the palpating hand over the patella. When sitting with her knees hanging over the edge of the table, extension of the right knee to more than 45 degrees was impossible unless she held the quadriceps group. There was marked lateral internal and upward mobility of the right patella as compared to the left. The roentgen examination was negative.

The diagnosis was traumatic partial severance of the ligamentum patellae and the external ligaments of the patella.

Surgical intervention was advised if improvement did not occur, but she made a 50 per cent improvement within a few weeks of this examination.

CASE 9.—*History.*—E. G. A., a man, aged 59, was injured, Jan. 19, 1929, when he lifted some heavy timber and slipped, striking his left thigh posteriorly. Soon afterward he noticed that when he stood his left knee became very tired and that this leg would not support him unless he held it perfectly straight. After two hours the back of the thigh and knee pained him so severely that he was unable to work. As the pain increased in severity he went to see a physician, who had treated him ever since. At the time of examination his complaints were (1) aching in the back and inner surfaces of the lower third of the left thigh after standing for some time; (2) pain in the left knee if the leg remained in one position; (3) pain on both sides of the left knee cap at each step; (4) pain in the popliteal space when the knee was flexed, which radiated upward and (5) pain in the lower posterior third of the left thigh, when the left leg was crossed over the right knee.

Examination.—February 20, with the patient standing in a normal position, nothing was seen except a slight ecchymosis and dilatation of the superficial capillaries. There was no difference in the circumference of the legs. When the muscles of the thigh were flexed or contracted a protrusion of muscular tissue 15 cm. long and 3 cm. wide on the posterior and inner aspects of the lower third of the left thigh was seen.

11. This case was referred to the author by Dr. James M. Marshall of San Luis Obispo.

The diagnosis was partial rupture of the semitendinosus and semimembranosus muscles, or their sheaths, permitting herniation.

Operation and Result.—February 27, under local anesthesia, a linear incision 17 cm. long was made over the course of the semitendinosus muscle, and the muscle was exposed. The semitendinosus, the semimembranosus and the gracilis muscles were dissected above and below to their tendinous sheaths. The only muscle found to be relaxed was the semitendinosus. At each voluntary contraction of the muscle, it bulged almost to the size of a hen's egg. It was evident that the injury to this muscle was the cause of the trouble.

The muscle was repaired by shortening the muscle fibers by a continuous in-and-out mattress suture; this suture then was carried up to the tendinous sheath, which also was shortened. After this procedure, contraction of the muscles no longer produced the bulging seen previously. The fascia was plicated in order to fortify this area still more. The wound was closed by interrupted sutures.

Following operation, the patient gained a great deal of strength in his leg and walked without the aid of a cane. He was able to bear the weight of his body on this leg and to climb stairs well.

CASE 10.[12]—*History.*—M. M., a man, aged 38, was injured, Oct. 31, 1930, when he fell about 3 feet while carrying a weight of 105 pounds on his shoulder. He landed on his left foot; his body turned clockwise on his left knee, and his foot fixed, causing a twisting of his knee. He said that he felt sort of a "squashing" sensation in his knee at the time, and that, after arriving home that evening, he had considerable pain in the back of his knee. At the time of examination the pain was mostly in the back of his knee at the inner side of the popliteal space, radiating through to the front of the knee at the inner side of the patella. In addition, he said that when he bent his knee it felt as though something were tearing at the back of it and, if he sat for a time, his knee stiffened considerably. After his injury, hot tub baths were used until November 3; after that he wore a plaster-of-paris cast for a month. In addition, he had diathermy treatments. In July, 1931, his knee was operated on for a bursa under the semitendinosus muscle.

Examination.—August 17 there was some atrophy of the muscles of the left thigh, which was about one-half inch smaller than the right. There was no swelling of the left knee, no thickening in the lining, no free fluid in the joint and no abnormal instability. The range of motion was normal.

In the back of the left knee, over the internal hamstring group, was a scar about 4 inches long, which was well healed and freely movable. Standing on his toes, bending his knees and rising again caused pain over the inner origin of the gastrocnemius muscle. When the patient lay on his face with his knee flexed at a right angle, attempts to flex it against resistance to more than a right angle caused pain in the same area.

Both feet were pronated considerably when the patient stood, the left more than the right. The patient used a cane, though he was able to walk perfectly well without it.

Roentgenograms of the knee joint, taken from many angles, did not reveal any definite evidence of bony pathologic changes.

The diagnosis was partial rupture of the medial head of the left gastrocnemius muscle.

Operation and Result.—December 14, under spinal anesthesia, with the patient lying on his face, an incision about 10 inches long was made over the popliteal space just lateral to the semimembranosus muscle. This was carried through the deep fascia, and by gross dissection, the semimembranosus and semitendinosus muscles were retracted inward. The nerve and large vessels found in the popliteal space were retracted laterally. Particular care was taken not to cut the nerve of the inner head of the gastrocnemius muscle. One small filament was seen going to the most proximal portion of this head, but not the large leash of nerves which should enter the inner head of the gastrocnemius. The insertion to the proximal portion of the muscle was exposed. It was a very thin tendinous insertion about 1½ inches long, with no muscle fibers running up to the femur. Distal to this tendinous insertion, the muscle bulged down very markedly, especially on the lateral side of the inner head. It seems likely that a large portion of the muscle had been pulled loose from the tendon of insertion and that this accounted for the changes noted.

Two heavy black silk mattress sutures were passed through this bulging portion of muscle, which was carried up to the tendon of insertion and sutured there. The deep fascia and subcutaneous tissues were then closed with plain number 1 catgut, and the skin was sutured with interrupted dermal. A pillow splint was applied with the leg in semiflexion.

The postoperative diagnosis was an old injury to the inner head of the gastrocnemius muscle.

The patient has made great improvement and is still under treatment.

CASE 11.—*History.*—M. A., a man, aged 24, was injured while lifting a 300 pound block of ice over the edge of a truck; it caught and began to tilt and slide to the left. To prevent it from falling on his feet, he had to use all his strength and put all his weight on his left leg. His foot was held stationary and his left thigh was prevented from rotating and tilting outward by the prolonged, forceful contraction of his internal calf muscles, thus producing a sudden, spiral, clockwise movement of his left thigh over the knee, leg and foot. But the contraction of the muscles of the leg was incoordinated and unbalanced and thus tore the muscle where the tension was the greatest; i. e., on the inner head. As a result of this muscular effort in balancing his body and the block of ice, he felt a dull pain in his left calf. This did not prevent his working for about a week, but at the end of that time, as his leg began to pain him more and more, he had to cease.

Examination.—There was a slight atrophy of disuse of the internal aspect of the left calf, and the muscular contour was less pronounced than on the right side. Circumferential measurements of the calf were 1 cm. less on the left as compared to the right. On palpation there was a decrease in the tonicity of the muscles of the left calf. On weight bearing and on standing on his toes, palpation revealed a difference between the external head of the left gastrocnemius, which became hard under contraction, and the internal head, which remained softer and in which there was a suggestion of a sulcus deep into the muscular mass.

The diagnosis was partial rupture of the muscular head of the left internal gastrocnemius.

Treatment.—The patient was improving at the time he was examined. He was treated conservatively.

CASE 12.—*History.*—J. B., a man, aged 50, was convalescing from an open reduction of a fracture of the left patella. As he stepped from the curb with his right foot, and his weight was supported by his toes in the foot movement of the step forward, he felt a sharp pain in his right calf and fell to the ground. After he sat on the curb for ten or fifteen minutes, the pain subsided somewhat and he was able to come to my office.

Examination.—There was an extensive ecchymosis of the right leg, posteriorly, and marked edema in the calf region, with much tenderness on pressure along the course of the plantaris muscle and pain on the plantar flexion of the foot against resistance.

The diagnosis was a tear of the plantaris muscle.

Treatment and Result.—The treatment was massage, a supporting bandage and moderate exercise. The patient recovered in from ten to fourteen days.

CASE 13.[10]—*History.*—Miss E. P., aged 28, while dancing and leaping in the air for height, felt something snap in the back of her left leg. This accident occurred in March, 1927. She was unable to bear her weight on the left leg.

Examination.—A loss of tension of the left achilles tendon with muscular retraction was found.

Operation and Result.—April 5, a rupture was found at the musculotendinous junction, some tendon being left above. A tenoplasty was done, a free graft of the achilles tendon being used to bridge the gap.

A good result was achieved.

12. The author is indebted to Drs. Everingham and Hitchcock for the report of this case.

CASE 14.[13]—*History.*—G. R. M., a man, aged 30, fell from a ladder a distance of 12 feet, striking on the point of his right elbow. His right foot was entangled in the rungs of the ladder and was forcibly dorsiflexed by its weight. He was unable to extend his right foot and also suffered pain in and deformity of his right elbow.

Examination.—June 28, 1931, he was able to walk without much discomfort. There was an indentation about 1 inch above the os calcis, and he was unable to extend his foot. There were swelling, pain and deformity of the right elbow.

The diagnosis was (1) rupture of the right achilles tendon and (2) comminuted fracture of the head of the right radius.

Operation.—June 29, a reduction of the fracture of the right radius was done; in addition, the achilles tendon was sutured and a fascial transplant was done. An incision was made along the medial surface of the achilles tendon and was carried to the tendon, which was found to be completely ruptured and very badly shredded. Long strings of tendon could be pulled from within the muscle and from the tendon attached to the os calcis. The plantaris tendon was intact. By steady traction on the gastrocnemius and by placing the foot in an equinus position, the tendon was brought together rather easily. The incision was carried high to obtain a long suture of plantar tendon for use in the repair. A strip about 8 inches in length was secured. This was left in place at its attachment to the os calcis, and the proximal end was looped into a large-eyed needle. It was woven in and out of the two shredded ends of the tendon at its anterior surface. Another long shred of tendon was used in like manner, but because of its large size it was impossible to attach it to the needle; stabs were made through the tendon and the suture was drawn in and out. This held the anterior half of the tendon firmly. A stab wound was then made on the lateral surface of the thigh just above the knee and, with the Whitman fascia apparatus, two long strands of fascia lata were removed for suture material. This was accomplished easily and without hemorrhage. Stab wounds were made and the fascia lata suture was braided in and out to hold the two fragmented tendons together. This made a thick, heavy rope of tendon about one-half inch in diameter, which appeared to be able to withstand a good deal of force. All of these were held by interrupted fine black silk sutures. The sheath of the muscle was drawn over the tendon and was sutured into place. The subcutaneous tissue was closed with buried, plain catgut and interrupted sutures, and the skin was closed with black silk. The stab wound and the thigh were treated in a like manner. Dry dressings were placed, and a cast was applied with the foot in the equinus position.

The patient's postoperative course was uneventful, and his condition was much improved.

CASE 15.[14]—*History.*—A. P., a man, aged 35, was injured June 12, 1926. When running, he stepped into a hole and fell forward. His toes were on the edge and his heel went into the hole, so that his foot went into extreme dorsiflexion. He was unable to walk or to balance himself when he attempted to lean slightly forward.

Examination.—The achilles tendon was lax and tender about 3 cm. above the inner malleolus. The calf was tender to palpation as far up as the knee. The medial surface showed slight ecchymosis. The patient was unable to bring his foot into dorsiflexion on account of pain, or to bring it into plantar flexion on account of the ruptured achilles tendon.

The diagnosis was rupture of the achilles tendon 5 cm. above the os calcis.

Operation and Result.—Clots were found in the tendon sheaths and were removed June 20. The ends of the tendon were sutured with medium braided silk. Dry dressings were used, and a cast was applied with the foot in the equinovarus position with the knee slightly flexed.

The course after operation was uneventful and the patient's condition was much improved.

Fitzhugh Building.

13. The author is indebted to Dr. LeRoy Abbott for the report of this case.

14. The author is indebted to Dr. Wallace Terry for the report of this case.

RELATION OF PHYSICAL CHARACTERISTICS TO SUSCEPTIBILITY TO ANTERIOR POLIOMYELITIS

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In view of various opinions as to a possible relationship existing between physical characteristics of an individual and susceptibility to anterior poliomyelitis, the following study was undertaken during the month of April, 1932:

Fifty-two children, all of whom had been paralyzed during the epidemic of 1931 in New York City, were studied from an anthroposcopic point of view. The factors taken into consideration were the separation of the teeth, the presence of lunulae at the base of the finger nails, the color of the individual, the presence of pigmented spots, the shape of the aperture of the eyes, the development of the male genitalia, and the general build of the individual. These factors were chosen since they were made the anthroposcopic basis of the study recently reported by Draper [1] on the same subject.

TABLE 1.—*Lunulae in Fifty Children Taken at Random From Each Age Group*

	Age in Years							
Lunulae	3	4	5	6	7	8	9	10
None	29 (58%)	13 (26%)	3 (6%)	0	0	0	0	0
1-5	19 (38%)	34 (68%)	37 (73%)	33 (66%)	26 (52%)	22 (44%)	21 (42%)	10 (20%)
6-10	2 (4%)	3 (6%)	10 (20%)	17 (34%)	24 (48%)	28 (56%)	29 (58%)	40 (80%)

In order to make the results as accurate as possible, an equal number of controls was obtained. These controls were not chosen at random, as it became very evident that it was impossible to match a Norwegian child against a Spanish child, since racial characteristics differ so markedly. Therefore, children of similar racial groups were matched.

It was also found necessary that children of equal age be obtained as controls, since it was noted that younger children still having deciduous teeth were far more apt to have a separation than children of an older group already having permanent teeth.

Another definite age relationship is the lunulae of the finger nails, for it is a definite fact that here, too, the younger the child the less likely is he to have lunulae. Table 1, taken as the result of a study on children of the City and Country School in New York City shows this clearly.

The paralyzed patients were therefore listed as to age and race, and a control of similar age and race, who had lived in New York City during the epidemic of 1931, was matched with each patient. The average age of both the poliomyelitis children and the controls was 4.5 years. In every instance the opinion is a joint one of the three authors, or the opinion of one or more of the authors and the resident physician at the hospital

From the Bureau of Laboratories, Department of Health.

1. Draper, George: The Nature of the Human Factor in Infantile Paralysis, Am. J. M. Sc. **184**: 111 (July) 1932.

visited.[2] As was mentioned previously, all paralyzed cases included in this study were taken from the epidemic of 1931.

RESULTS OF STUDY

For the sake of explanation, the factors studied will be considered separately.

1. *Separation of Teeth.*—Under this category the cases were grouped as to the separation of the upper incisor teeth by a definite cleft. Equalization of age groups between the paralyzed cases and the controls is of particular importance when this factor is considered, since the deciduous teeth are frequently separated while the permanent teeth are much less so. The results obtained are shown in table 2. We lay no particular emphasis on the moderate differences in percentage noted in the table, as it is probably within the limits of chance.

TABLE 2.—*Separation of Teeth*

	Poliomyelitis Cases	Controls
Teeth separated	19 (36%)	24 (46%)
Teeth together	29	25
No teeth	4	3

2. *Lunulae.*—In the consideration of this factor, also, age is a very important quantity. The table shown previously of the figures obtained on a study of children at the City and Country School bear this out. We conclude from the results in table 3 that there is no important difference in the presence of lunulae when equal age groups are compared.

TABLE 3.—*Lunulae*

	Poliomyelitis Cases	Controls
Lunulae:		
None	23 (44%)	25 (48%)
Very few	22	20
Present (3 or more present on each hand)	7	7

3. *Color.*—In our series of cases, when children of like racial groups were compared, the results are those shown in table 4. Although there is a rather decided difference between the two groups, we are inclined to place this also within the limits of chance. It may be noted that the results are opposite to those obtained by Draper.

TABLE 4.—*Color*

	Poliomyelitis Cases	Controls
Blonde	32	23
Brunette	18 (34%)	27 (52%)
Negro	2	2

4. *Pigmented Spots.*—Here, again, age is a rather important factor, since children under the age of 2 seldom present as numerous nevi as do older children. Apparently there was very little difference between the groups in number of nevi when children of similar age and race were compared.

There was no noted difference between the number of freckled children in the two groups.

TABLE 5.—*Pigmented Spots*

	Poliomyelitis Cases		Controls	
None	17		16	
Few	25		28	
Moderate number	7	15%	3	11%
Many	1		3	
Negroes	2		2	

5. *Mongoloid Eyes.*—This refers to the shape of the palpebral fissure with a downward and inward slant. We conclude that there is no appreciable difference in the frequency of this characteristic when cases of similar racial groups are compared.

6. *Epicanthal Folds.*—While here again our results gave no outstanding differences between the two groups, we are omitting our figures, since the question arose as to whether our standards and those of Draper were similar.

In this instance, also, age and race are important factors.

May, in his book "Diseases of the Eye," says: "In slight degree it is often seen in young children associated with a flattened bridge of the nose, and often disappears with the development of the face."

7. *Overbite.*—Definite overbite was shown in 66 per cent of the poliomyelitis cases as against 62 per cent of the controls. No decided difference was noted in the alinement of teeth in the two groups.

TABLE 6.—*Mongoloid Eyes* *

Mongoloid eyes	Poliomyelitis Cases		Controls	
0	35		33	
±	10	33%	5	36%
+	7		14	

* Certain cases in which the condition, though present, is nevertheless slight are graded ±.

8. *Genitalia.*—In none of the 104 cases studied was any abnormality of the genitalia present, such as cryptorchidism and maldevelopment.

9. *Bodily Type.*—In none of the 104 cases studied was there any tendency to the status lymphaticus type. We were told, however, that a child of this type had been discharged from the New York Orthopedic Hospital one week prior to our visit. Nineteen per cent of the poliomyelitis cases showed a degree of adiposity as against 13 per cent of the controls. It has been suggested that this difference may be due in some degree to the immobility of the paralyzed children.

COMMENT

The results obtained in the foregoing study do not correlate with those reported by Draper. The differences may possibly be due to the careful manner used in matching controls, as to both age and race of the children studied.

The mean age of the patients herein reported was 4.5 years, whereas in the cases reported by Draper the mean age was 9 years. It may be noted that the average age of children affected by poliomyelitis during the epidemic of 1931 was 6 years.

SUMMARY

1. A series of fifty-two children paralyzed by anterior poliomyelitis in the epidemic of 1931 and fifty-two controls living in New York at the same time have been studied from an anthroposcopic point of view.

2. All poliomyelitis patients were matched by controls of similar age and race.

2. We are indebted to the professional staffs of Bellevue Hospital, New York Orthopedic Hospital, Hospital for the Ruptured and Crippled, Fifth Avenue Hospital, New York Nursery and Child's Hospital, and St. Mary's Hospital for Children for their kindness and cooperation in this investigation.

3. No outstanding differences between the groups were noted in a study of the following factors: separation of teeth, overbite, alinement of teeth, lunulae, color, pigmented spots, mongoloid eyes, epicanthal folds, genitalia, and bodily type.

CONCLUSION

The anthroposcopic study of fifty-two children paralyzed by anterior poliomyelitis during the epidemic of 1931, and fifty-two controls who lived in New York during the same epidemic brings forth no evidence of the relation of physical characteristics to susceptibility to anterior poliomyelitis.

Foot of East Sixteenth Street.

AN UNUSUAL DISEASE OF THE BONE MARROW (OSSEOMYELODYSPLASIA)

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AND
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CHICAGO

The clinical and anatomic characteristics of the disease of the bone marrow (osseomyelodysplasia) in a white boy, aged 7 years, to be described herein are of interest chiefly because we have been unable to correlate it with any of the distinctive bone marrow diseases. Myeloma, at first glance, seems to be the group that might possibly include our case because of the marked destruction of bone and the wide dissemination of the bone marrow alterations. Yet, as will be noted from its characteristics, this disease differs greatly from myeloma so far as the general characteristics of neoplasms are concerned. Of the diseases now included under the group name myeloma, erythroblastoma would be worthy of the most consideration; but this disease has nothing really in common with our case. The absence of hyperplasia of the usual potential accessory myeloid depots in the liver and spleen, together with the absence of an increase of white cells in the peripheral blood during life, excludes the leukemias as a depository for this disease. The absence of anatomic and anamnestic evidence of infection excludes, in a critical way, retrogressive changes from toxemia as a reasonable explanation. We believe that a disturbance in the circulatory mechanism of the myeloid tissue offers the clearest explanation for the disease at the present time. This suggestion is made with hesitancy, because the explanation is reached on deductive reasoning rather than on demonstration of the cause for the circulatory disturbance.

From the Children's Ward and the Pathological Department of the Presbyterian Hospital.

History.—S. G., a white boy, aged 7 years, was admitted to the Presbyterian Hospital, April 9, 1931. For six months he had walked with a limp and complained of fever and pains in various parts of the body. He had had hay fever in 1928 and 1929, and during August, 1930, injections for immunization were started and hay fever did not develop. The first part of October, 1930, the patient's mother noticed that he was walking with his left foot turned in. He complained that his feet hurt when he walked. A few weeks later, pain in the left knee began, followed by pain in the left hip and in the back. The pain was worse on motion and during cold, damp weather. In November, fever, associated with headache, was noticed occasionally. His condition remained about the same for the next four months. Fever and headaches were present at times. Pain in various joints was intermittent.

Blood Picture

				Differential				
	Hemoglobin, per Cent	White Blood Cells	Red Blood Cells	Polymorphonuclears	Small Lymphocytes	Large Lymphocytes	Transitionals	Eosinophils
First Entrance								
4/ 9	38 D.*	1,850	3,490,000	36	54	9	1	..
4/ 9	.....	1,250	.....	..	..	..	..	..
4/11	.....	1,600	.....	..	..	..	..	..
4/11	38 D.	1,100	3,150,000	..	..	..	..	..
4/15	56 N.	.....	3,230,000	..	..	..	..	..
4/18	.....	2,160	.....	..	..	..	..	..
4/20	.....	1,050	3,330,000	..	..	..	..	..
4/26	56 N.	1,750	3,340,000	21	74	..	5	..
4/27	50 N.	1,850	3,400,000	..	..	..	..	..
4/30	55 N.	1,450	3,260,000	19	78	1	2	..
5/ 6	66 N.	2,100	3,600,000	33	66	..	1	..
5/ 8	56 N.	2,950	3,700,000	55	42	2	..	1
5/11	58 N.	2,500	3,880,000	61	38	1	..	..
5/13	68 N.	2,350	3,420,000	58	40	2	..	..
5/15	62 N.	3,000	4,200,000	52	42	3	..	..
5/18	68 N.	2,150	4,500,000	50	50	..	..	..
5/20	66 N.	3,150	4,450,000	35	65	..	..	..
6/ 3	66 N.	3,150	4,500,000	54	46	..	..	..
6/15	55 N.	2,600	2,210,000	50	50	..	..	..
Home								
Second Entrance								
7/29	50 N.	2,400	3,570,000	64	34	..	1	1
8/10	58 N.	2,900	3,430,000	..	..	..	..	..
8/26	42 N.	2,000	2,820,000	..	..	..	..	..
8/31	49 N.	1,200	3,800,000	4	96	..	..	..
9/ 1	.....	800	.....	10	90	..	..	..
9/ 2	.....	910	.....	31	68	..	..	..
9/ 3	.....	3,200	.....	62	35	3	..	..
9/ 5	.....	3,600	.....	52	48	..	..	..
9/ 7	.....	4,400	.....	..	..	..	..	..
9/17	.....	3,750	.....	..	..	..	..	..
9/21	57 N.	4,250	4,230,000	47	51	2	..	..
9/24	.....	9,550	.....	77	17	5	1	..

* D. indicates Dare; N., Newcomer.

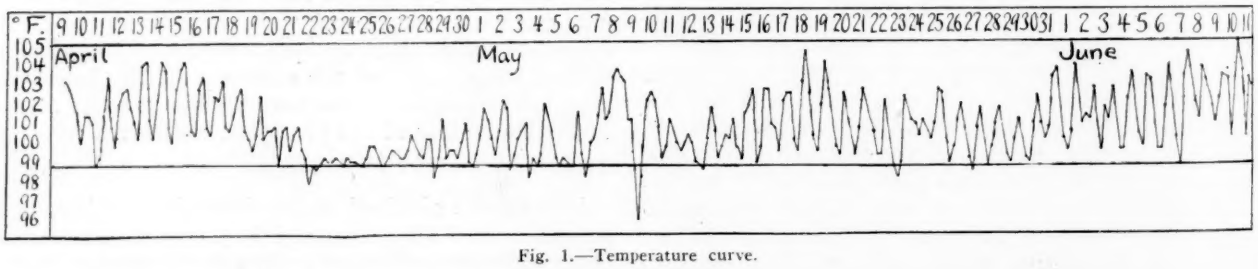

Fig. 1.—Temperature curve.

The patient's birth history was negative. He weighed 9 pounds (4,082 Gm.) at birth and was breast fed for one year. Development was normal during infancy. Sore throats had occurred only occasionally. The tonsils and adenoids were removed at 4 years. He had whooping cough at 5 years and chickenpox at 6 years. The mother, aged 32, was well except for unilateral headaches. The father had had rheumatic pains four years previously. Two brothers, aged 5 and 7 years, were well. Further family history was negative. (He was of Nordic stock.)

Examination.—On admittance, the patient had a temperature of 103 F. and a pulse of 104. He appeared somewhat pale and thin but did not seem very ill. Physical examination did not reveal any gross abnormalities, and neurologic examination was entirely negative. The blood count showed 1,850 leukocytes per cubic millimeter, 3,490,000 red cells and 56 per cent hemo-

globin (Newcomer). A differential count of blood smears was 36 per cent polymorphonuclear leukocytes, 54 per cent small lymphocytes, 9 per cent large lymphocytes and 1 transitional cell. Examination of the urine gave entirely negative results. During the first week the temperature ranged between 100 F. and 104 F., being highest in the evenings. It was quite noticeable that the patient seemed comfortable, played and did not

Fig. 2.—Appearance of vertebrae, April 11, 1931, showing lipping and thinness of the bodies.

appear sick, even when the temperature was 104 F. During the second week the temperature gradually dropped to normal and the patient was afebrile for two days, followed by a gradual daily increase up to 102 F. During the next six weeks the temperature was distinctly intermittent. Mornings he was afebrile, while in the evenings the temperature was usually 102 F., occasionally 103 or 104 F. (fig. 1).

Course.—The leukopenia persisted. Daily white blood counts during the entire month of April varied between 1,050 and 2,160. During May, liver extract was given and the white count varied between 2,100 and 3,150 cells. The hemoglobin rose gradually from 55 to 66 per cent and the red blood count from 3,490,000 to 4,500,000. Urinalysis was uniformly negative. Blood smears repeatedly showed no malarial parasites nor unusual cell forms.

The roentgenogram of the chest, April 11, showed moderate hilar shadows, considered to be within normal limits. The bones of the entire skeleton were slightly rarefied uniformly. The atrophy was most marked in the pelvic bones, the lumbar vertebrae (fig. 2) and the upper ends of the femurs. The nasal accessory sinuses appeared clear. The sella turcica and the skull bones appeared normal.

One month later there was a slight increase in density in the bones of the extremities, particularly at the epiphyseal lines. An additional ossification center was present in the wrists, seven in all, previously six. Skull and sella remained negative.

The blood pressure was from 100 to 110 systolic and 65 diastolic. Spinal puncture yielded clear, colorless fluid, increased pressure, no cells, a trace of globulin, a negative Wassermann reaction, gold chloride curve 0111100000, sugar 60.5 mg., and total protein 33.3 mg. Stool cultures showed no pathogenic organisms. The blood Wassermann reaction was negative. Blood serum caused no agglutination with B. typhosus, B. paratyphosus A, B. paratyphosus B, Brucella abortus bovini, Brucella melitensis on three occasions. The opsonic index of the patient's blood for Brucella abortus (bovine) and B. suis was 18 per cent, as compared to a normal of 1 per cent. The Pirquet skin test was negative. There was no free hydrochloric acid and there were 37 units of total acidity one hour after an Ewald test meal. The stools appeared normal and did not contain blood. Vision was 20/20 in each eye. Examination of the fundi was reported negative by the ophthalmologist. Neurologic examination by Dr. Peter Bassoe was negative except for slight hypotonicity of the leg muscles with brisk knee and ankle jerks.

The patient appeared comfortable and happy day after day during April and had no complaints in spite of the temperature range of from 102 to 104 F. The appetite was good at all times.

May 9, pain in the left elbow began. There was slight swelling around the joint. He also complained of pain in the lumbar region of the back. Acetylsalicylic acid relieved the pain in the elbow promptly, but the pain in the back persisted.

The patient was allowed to sit in a wheel chair for a short time daily during the latter part of May. He was remarkably comfortable and did not appear sick, although the fever continued. At this time the only positive manifestations were the fever, leukopenia and uniform atrophy of the bones as seen in the roentgenograms. Physical examinations remained negative and all laboratory tests failed to yield any positive information. Frequently he stated that his back hurt when he moved, and often he said he felt warm when his fever was highest. There were no chills. Headache occurred the first part of June but disappeared promptly when sodium salicylate was given.

The third week in June the temperature gradually dropped from a daily peak of 104 F. to normal, and because of the insistence of the parents the patient was allowed to go home, June 18. For two weeks he felt well and then the fever returned and reached 104 F. daily for three or four days but stayed between 100 and 101 for the next two weeks. The last two weeks in July the patient was nauseated continually and vomited frequently. He complained constantly of pain in the epigastrium and in the back.

July 29, he was readmitted to the hospital chiefly because of the abdominal pain and vomiting. The rectal temperature on admittance was 109 F., but about one hour later, after a sponge bath, it dropped to 105.6 F. The patient had lost 5 pounds (2,268 Gm.) while at home. Physical examination revealed no abnormalities except tenderness to pressure over the lumbar

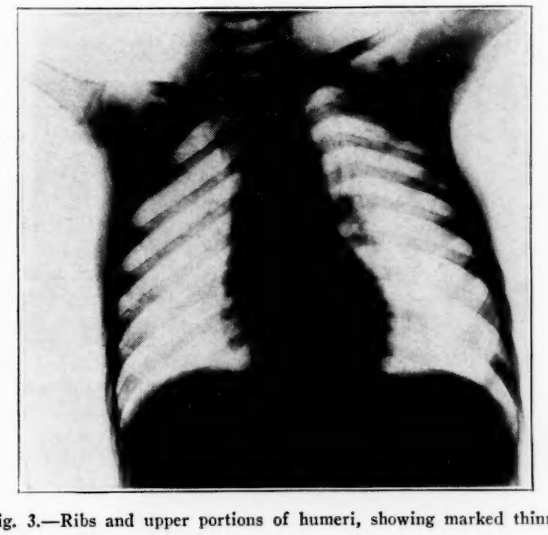

Fig. 3.—Ribs and upper portions of humeri, showing marked thinning.

vertebrae. The blood count on readmittance showed 2,400 white cells, 3,570,000 red cells and 50 per cent hemoglobin. The differential yielded 64 per cent polymorphonuclears, 34 per cent lymphocytes, 1 transitional and 1 eosinophil.

Smears for malarial parasites were again negative on several occasions. Urinalysis was negative. There was no Bence-Jones protein detected at any time. Agglutination reactions for Brucella melitensis, and Brucella abortus (bovine and porcine) were again negative. The Mantoux test was negative in a con-

centration of 1 to 1,000. Blood cultures were repeatedly negative. Urine cultures produced only staphylococci. The Wassermann and Kahn tests of the blood serum were negative. The Weil-Felix reaction was negative. The stools were soft-formed and contained no blood. The blood calcium was 10.2 mg. and the blood phosphorus 3.62 mg.

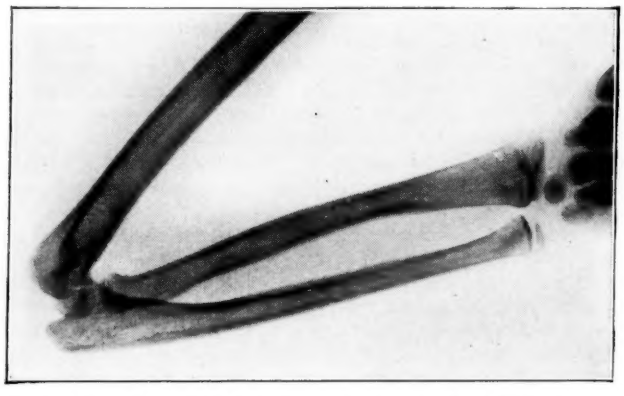

Fig. 4.—Bones of the upper extremity, showing thinning.

The x-rays showed marked decrease in density in all the bones, especially the pelvic bones (figs. 3, 4, 5, 6 and 7). The bodies of the vertebrae were flattened and narrowed on their anterior margins (fig. 8). A roentgenogram of the chest was negative. The parents refused permission for a biopsy of one of the bones.

Because of the daily rise in temperature, it was suggested that a therapeutic test with quinine be tried. The day after quinine sulphate, 5 grains (0.3 Gm.) three times a day, was started the patient became abruptly afebrile and remained so for five days, but the temperature then rose to 100 F. or 101 F. daily for the following two weeks.

Fig. 5. — Bones of the lower extremity, showing thinning.

Pain in the right arm persisted for several days but there were no other complaints. During the first three weeks in August the patient looked fairly well, ate heartily and was in a wheel chair almost every day. He was quite weak, but on August 18 he walked across the ward unassisted. The knee jerks became greatly exaggerated and a sustained ankle clonus was present on both sides. A positive Babinski reaction was elicited on the left foot. These results were interpreted as being due to pressure on the spinal cord, caused by the collapse of the anterior margins of the lumbar vertebrae.

August 22, he complained of headache and of pain in his feet. He became listless and refused to eat. The temperature increased daily to 103 and 104 F., with morning drops to normal. He became sleepy and lethargic, ceased to play and showed no interest in his surroundings. A severe infection began in the pharynx, and ulcers rapidly developed over the pillars of the fauces, making swallowing extremely painful. The glands on both sides of the neck enlarged greatly and were very tender. At this time the white count had dropped to 1,200 with 4 per cent polymorphonuclears and 94 per cent lymphocytes. Two days later the white count was 800 with 10 per cent polymorphonuclears and 90 per cent lymphocytes. Two blood transfusions were given, and sodium nucleinate was started by mouth. A few days later stimulating doses of roentgen therapy were used on the long bones. Within a week under this management the white count rose to 4,400, which was the highest count so far recorded, with 52 per cent polymorphonuclears and 48 per cent lymphocytes. The mouth infection rapidly disappeared but the cervical gland enlargement continued. Pain in the left ear began as the throat infection was subsiding, and in a few days a purulent discharge from the ear started.

After the so-called agranulocytic attack had passed, the temperature did not rise higher than 100 or 101 for the following two weeks. The cervical glands suppurated, were drained and decreased rapidly in size. The patient seemed to improve daily. He laughed, talked, played and offered no complaint. His appetite improved remarkably. A slight discharge from the left ear continued.

September 20, the patient complained of headache, and his temperature rose to 102.4 F. The following day the headache continued, and pain in the left shoulder began. However, the next day he was more comfortable and afebrile.

September 23, he was comfortable during the day but at about 6 o'clock in the evening became listless and did not respond to questions. A nystagmus developed with deviation of the eyes to the left and the quick component to the right. The ophthalmologist saw no abnormalities in the ocular fundi. The left ear contained a slight amount of seropurulent discharge. There was no mastoid edema. Within an hour from the onset of the nystagmus, rhythmic twitching of the muscles of the right arm began and spread to the right leg and right side of the face. The contractions increased in severity and developed into a generalized convulsion, which was stopped immediately by inhalation of ether. Spinal puncture yielded clear, colorless fluid, under normal pressure; negative globulin; 42 lymphocytes per cubic millimeter; negative benzidine test, and no organisms by smear or culture. The Queckenstedt maneuver on each side showed immediate increase in spinal fluid pressure. The blood drawn immediately after the convulsion contained 10.4 mg. of calcium per hundred cubic centimeters. The total nonprotein nitrogen of the blood was 40.4 mg., and the blood sugar 158.8. The white blood count was 9,550 with 77 per cent polymorphonuclears, 22 per cent lymphocytes and 1 transitional cell.

Fig. 6.—Bones of the foot, showing thinning of the cortex and marked decrease in the osseous material.

Following the convulsion, the patient slept all night and awoke in the morning looking remarkably bright. He ate well at breakfast and offered no complaints. However, in the evening he became irrational and the muscles on the right side of the body began rhythmic contractions, followed by a severe generalized convulsion. Sedatives relieved the convulsion but the muscle spasms on the right persisted, and the patient remained comatose. The temperature rose rapidly to 107.4 F. before death.

Postmortem Examination.—The body weighed 34 pounds (15.4 Kg.) and measured 126 cm. in length. External inspection revealed nothing except marked pallor, slight flattening

of the front of the chest, and healing surgical incisions of the neck where recent subcutaneous abscesses had been drained.

The important organs of the neck, thorax and abdomen were very pale. The lymph nodes of the neck, axillae, mediastinum, mesentery, periaortic and peri-iliac regions,

Fig. 7.—The skull, showing evidence of marked decalcification, especially in the frontal region. Over the occipital region are radiant shadows suggestive of erythroblastosis (Cooley).

groins, gastrohepatic ligament, and the lymph follicles of the small and the large intestine were small and grossly unaltered.

The brain, aside from slight edema, had no changes of note.

The pituitary gland, thyroid gland, suprarenal glands, pancreas and testes were of normal size and showed no noteworthy alterations.

The front surfaces of the bodies of all the vertebrae were purple. Particularly in the lumbar and thoracic regions, there was also marked narrowing of the bodies. The compact layer of bone was very thin and fragile. The most striking characteristics of the cancellous portions were the sparsity of bone and the wetness of the marrow. As the inner portions of the bodies were exposed, red watery fluid exuded from many portions, leaving a soft network of fibrous strands and red marrow. In other portions in which the marrow was firmer, there was both red and gray myeloid tissue, the red predominating.

The ribs were misshapen. The dorsal surfaces were flattened. A sharp angle was present near the posterior axillary lines, so that the back portions of the thoracic cavity were boxlike. The ribs were fragile and discolored blue in disseminated regions, owing to thinning of the compact layer and increase of the bone marrow. Nowhere were there nodular protrusions in the surfaces of the ribs.

The compact layer of the middle third of the femurs was only from 2 to 3 mm. in thickness. The marrow was abundant, red, soft and wet, an abundance of red watery fluid running from the cavity.

The calvarium was composed chiefly of compact bone. The diploe was sparse.

Microscopic Examination.—The changes in the bone and bone marrow of the ribs, bodies of the vertebrae, ilium and right femur were similar in the following respects:

1. The marrow cavities were enlarged, and the compact and cancellous bone was thinned by pressure atrophy.
2. Adipose tissue was present only in minute quantities in a few sections made from the bodies of the vertebrae.
3. Large thin-walled vascular spaces were very numerous and represented one of the outstanding changes.
4. Wherever nucleated cells were numerous the majority cells were members of the granulocytic and erythroblastic types.
5. Hemorrhage had occurred in multiple regions.

In the ribs, bodies of the vertebrae and pelvic bones, there were regions of active proliferation of erythrocytes, granulocytes and megakaryocytes. In the ribs particularly, however, there were places in which the marrow cavity contained very few of these cells, and the lumen was filled with a loose fibrillar structure containing many dilated blood vessels (fig. 9). In some of these regions, fibroblasts were numerous. In the meshes between the fibrillar structure there was in many places an eosin-staining granular precipitate. Grossly, places were observed in the marrow that were filled with a red, watery fluid, and such regions probably represented those places in which erythrogenesis and granulopoiesis was sparse. These were found in the marrow of the femur and ribs.

In a typical section of marrow from the femur (figs. 10 and 11) there were a few large arteries in the center of the section and a few scattered elsewhere toward the periphery. Disseminated irregularly through the section there were large regions containing red cells and fibrin where hemorrhage had occurred. Close to some of these places very few of the nucleated cells stained with hematoxylin and eosin. In addition to regions of hemorrhage, there were smaller vascular spaces with thin walls. The cells immediately abutting these regions were slightly elongated as if compressed, because the cells of the same type close by were made up chiefly of myelocytes and nucleated red cells. A few megakaryocytes were present. Because of the extensive necrosis of the nucleated cells, it was difficult to identify islands of erythropoiesis within vascular chambers, as described by Sabin and Doan Cunningham, and extravascular regions of granulopoiesis. However, in some places in which the cells stained fairly well it was commonly found that nucleated red cells were together in masses of four or five and that cells that might be in the granulocytic series were also together.

With phosphotungstic acid-hematoxylin stains the cellular regions were divided up by fine fibrillar network that included one or two cells in each mesh.

In another section of marrow from the femur, at least half of a section, 7 mm. in diameter, was composed of thin-walled

Fig. 8.—Appearance of the vertebrae, July 31, 1931, showing marked compression and increased thinning of the bodies.

vascular tissue. There was a thin fibrous wall. The lining cells were elongated endothelial cells. Most of these blood vessels were close together, appearing as if there were marked tortuosity of dilated veins. Elsewhere, the section resembled the one already described.

In sections of bodies of the vertebrae, the marrow cavity was crowded with nucleated granulocytes and erythrocytes. There were many large, thin-walled vascular channels. The cancellous bone was sparse and remained in the form of thin, isolated bony trabeculae. The compact layer was broken into small fragments. Where the breaks had occurred, there were frequently seen vessels that extended toward the perivertebral soft tissues, and accompanying these through the broken bony wall into the surrounding dense fibrous tissue were islands containing nucleated granulocytes and erythrocytes. The bone marrow of the bodies of the vertebrae were the best for study of the hyperplastic bone marrow because there was less distortion of necrosis and hemorrhage.

Microscopic preparations of the important organs of the trunk and cranial cavity, stained with hematoxylin and eosin and phosphotungstic acid-hematoxylin, were examined, particularly, of course, to search for islands of proliferated lymphatic and myeloid tissue. None were found.

There was no increase of hemosiderin in the phagocytic cells of the spleen and liver. It was thought at one stage of this investigation that anemia with the consequent proliferation of bone marrow might have resulted from an increased destruction of erythrocytes. There was no evidence supporting this explanation.

The arteries and veins of the organs of the trunk were examined to determine the presence of acquired changes in the vascular system to correlate with the interpretation that the stasis in the bone marrow may have been due to alterations in the veins.

Pathologic Changes.—The characteristics of this disease that are usable in classifying it anatomically are the following: The marrow was hyperplastic only in the marrow cavities. The accessary depots of myeloid proliferation (liver, spleen, lymph glands and the like) were not stimulated. There were no localized overgrowths such as occur in neoplastic diseases. The cells of the hyperplastic marrow were the cells normally present in the marrow. Thin-walled, dilated spaces containing erythrocytes were numerous throughout the marrow. Hemorrhage and necrosis destroyed the hyperplastic marrow in multiple regions.

Because of the absence of leukemic manifestations during life, and even more because of the absence of a generalized hyperplasia of myeloid tissue in the organs of the trunk, leukemia can be definitely excluded.

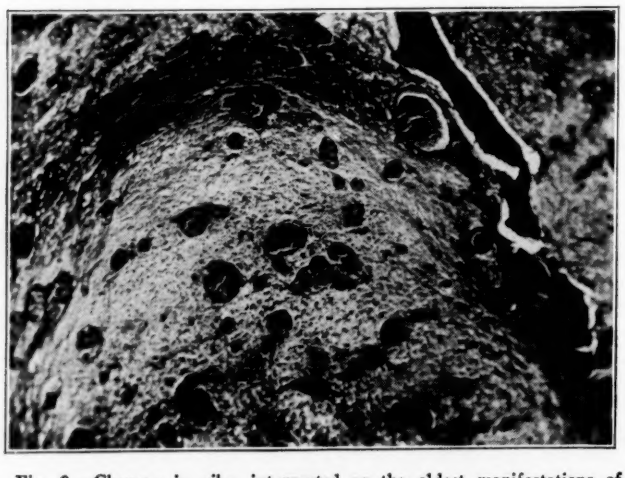

Fig. 9.—Changes in ribs, interpreted as the oldest manifestations of this disease. The compact layer of the bone is very thin, the cancellous portions exceedingly sparse, the marrow cavity replaced by multiple thin-walled vascular spaces, and the myeloid tissue represented only by a few granulocytes and red cells in a fibrillary network.

During life there were secondary anemia and leukopenia in spite of the hyperplastic marrow. At no time did the patient lose blood by bleeding to account for the reduction in hemoglobin. None of the usual pathologic changes associated with infectious diseases, such as hyperplasia of lymphoid tissue and of the spleen, ulceration or suppuration, were found, except those that occurred during the last few weeks in the period of marked agranulocytosis. In addition, there was no increase of hemosiderin in the phagocytic cells of the spleen and liver to account for an increased destruction of erythrocytes during life. We believe that these facts indicate that the hyperplasia of bone marrow did not arise from a general toxic condition and that it was not a compensatory mechanism because of an increased destruction of red cells in the reticulo-endothelial system.

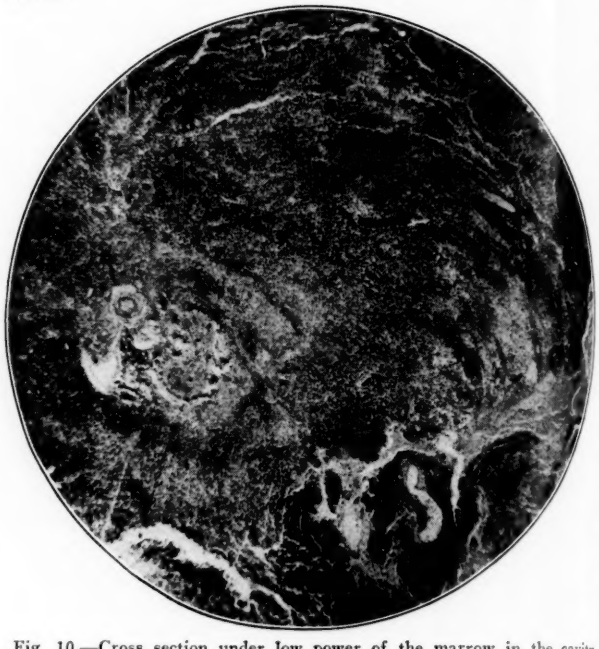

Fig. 10.—Cross section under low power of the marrow in the cavity of one of the femurs. There are many well formed arteries and veins, an absence of adipose tissue, and a marrow that, even though extensive, is relatively sparse in cells. In figure 11 are illustrated many of the thin-walled vascular spaces, regions of hemorrhage and necrosis that contributed to the sparsity of the cells.

The changes in the bone marrow that seem to be most typical of this disease involve the large vascular spaces filled with erythrocytes, and the hemorrhage and necrosis. In the literature no descriptions were found to aid in the explanation of these changes. The vascular spaces had thin walls resembling distended normal spaces rather than parts of an hemangioma. An explanation that suggests itself is that the escape of blood from the marrow was inadequate in this body for some reason. Stasis resulted, followed by bleeding and necrosis. This would account for the increased amount of bone marrow, the body attempting, of course, to maintain the normal level of erythrocytes and granulocytes. In the older regions of bone marrow, represented typically by the changes in parts of the ribs, there only remains in the marrow cavity many thin-walled vascular spaces filled with erythrocytes separated by a delicate fiber network in which a few nucleated red cells and granulocytes are observed.

The atrophy of bone resulted from the increase of marrow, because in the regions in which there is hyperplasia of bone marrow the growing red cells and white cells are in contact with the surface of the bone.

COMMENT

From the clinical standpoint, this case offers much of interest. In the first place, the almost continuous observation of this child for nearly five months failed to reveal any set of clinical phenomena that could be grouped as suggestive of any known clinical entity. In view of the results of the autopsy, this is scarcely surprising.

Unquestionably the three outstanding facts that the case presents are, first, the almost total absence of any complaint or prostration during almost all the entire course of the disease; second, the peculiar condition of the bone and, third, leukopenia. In addition to these, of

peculiar nature is the type of elevated temperature present over long periods and then absent for quite a while, only to return. When present, the temperature was high and intermittent day after day without causing any apparent inconvenience to the child. Hyperpyrexia was present, as is shown by the temperature of 109 F. at the time of his second admittance to the hospital. Autopsy failed to reveal any brain condition, such as brain tumor or meningitis, to account for this peculiar rise. The elevation of temperature, when present, occurred nearly always at least once during the day (fig. 1). There were occasional attacks of pain in the joints, with one attack of effusion into the elbow joint, which promptly responded to treatment with salicylates. The pain in the back, which occurred late in the course, was in all probability due to pressure on the spinal nerve roots. It should be emphasized, however, that at no time during the course of the disease was pain a very prominent complaint. The bone changes were peculiarly interesting. The roentgen evidence, which was confirmed at autopsy, was of bone with a very thin cortex and marked increase in the marrow. There can be little question after examination of the roentgenograms that this was a slowly progressive disease. The most definite evidence is to be seen in the change of the shape of the bodies of the cervical vertebrae toward the end of the course. This vertebral change has previously been observed [1] as part of the picture of multiple myeloma but never, so far as we can find out, as part of the picture of a generalized bone change affecting all the bones of the body.

The next point of interest is the leukopenia. This was extremely marked. At no time did the white count reach 5,000 except three days before death, when it was 9,550. At one time it was as low as 800, and during this period it is to be noted that the ulcerations of the mouth developed. In this respect the condition is similar to that of agranulocytosis, which no doubt existed. It should be noted, however, that for months

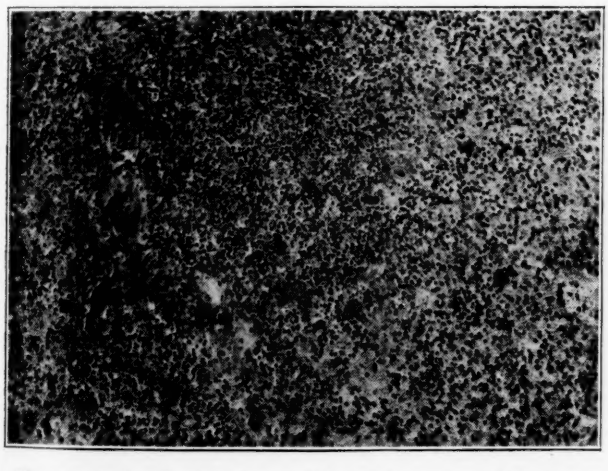

Fig. 11.—Section showing characteristics of the marrow of the femurs. The nucleated cells are normoblasts, granulocytes, megakaryocytes and the supporting structure. Hemorrhage, large thin-walled vascular spaces and necrotic regions are present and account for the sparsity of cells in a marrow that completely fills the cavities of the femurs.

previous to this the leukopenia had been present without very marked anemia and without an exceptional change in the type of the white cells. Immature white cells were not noted, and myelocytes were not seen. There was also present a certain amount of anemia, but this was not marked, even at a time just previous to death. At no time was there evidence of any generalized or local infection that could in any way account for the picture, and this lack of clinical evidence of infection was substantiated by autopsy.

From the standpoint of diagnosis, several conditions were considered. Of course with the type of fever

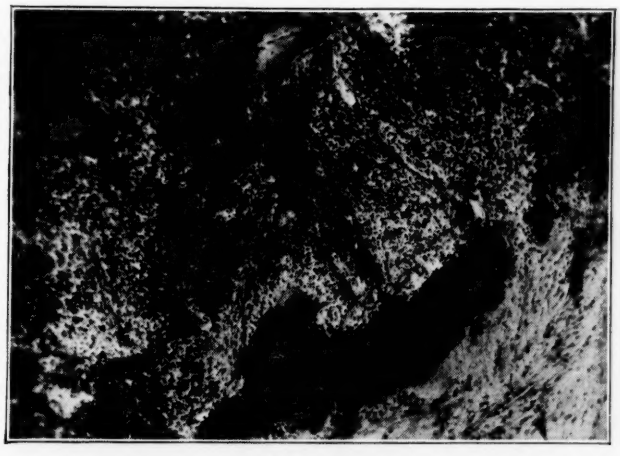

Fig. 12.—Preparation from one of the vertebrae, illustrating the most cellular regions observed in the bone marrow. In addition to the marked atrophy of the compact and cancellous portions, there is an unusual mixture of nucleated erythrocytes and granulocytes, and a moderately dense fibrillar structure separating the cells into islands of from two to four cells. The majority of cells are normal forms of normoblasts, erythrocytes and granulocytes.

existing over such a long period of time and without much prostration, we considered undulant fever but this was effectually ruled out by all the tests that were tried. From the first, multiple myeloma was considered, but neither in the roentgenograms nor at autopsy were such myelomatous masses discovered as are characteristic of this disease. Agranulocytosis was thought of. There is no question that it was present symptomatically, and it seems altogether likely that it can be associated with the ulcerative condition in the mouth toward the end of the disease. At the same time, the patient rarely complained of sore throat, and this was never a symptom that commanded our attention. While it is conceivable that the temperature curve might be attributed to agranulocytosis, certainly the bone changes had nothing to do with that disease. We were therefore unable to place this disease picture in any category that was known to us.

SUMMARY

A peculiar case of bone marrow change was found in a boy, aged 7 years. There was a high and irregular fever for several months. The general condition was at all times indefinite except for marked leukopenia and definite thinning of the cortex of the bones, which grew progressively more marked.

310 South Michigan Avenue.

1. Jacoby, Paul: Acta radiol. **11:** 224, 1930.

Medicine and Physiology.—A statement that medicine is founded upon physiology is, as has been said, but a fraction of the truth. There are vital branches of clinical knowledge to which physiology contributes little if at all. There are three chief ways in which clinical progress is achieved, and these may be reviewed briefly. They are: (*a*) the discovery of disease, that is, the identification of disease and its natural history; (*b*) experimental work on clinical cases, and (*c*) the application of physiological ideas and discoveries.—Lewis, Thomas: The Relation of Clinical Medicine to Physiology from the Standpoint of Research, *Brit. M. J.* **2:**1047 (Dec. 10) 1932.

PRIMARY ACTINOMYCOSIS OF THE STOMACH

REPORT OF CASE

ALEXANDER W. BLAIN, M.D.
DETROIT

In 1925, Sanford and Voelker[1] were able to find 670 cases of actinomycosis which had been reported in the United States. In the last six years additional

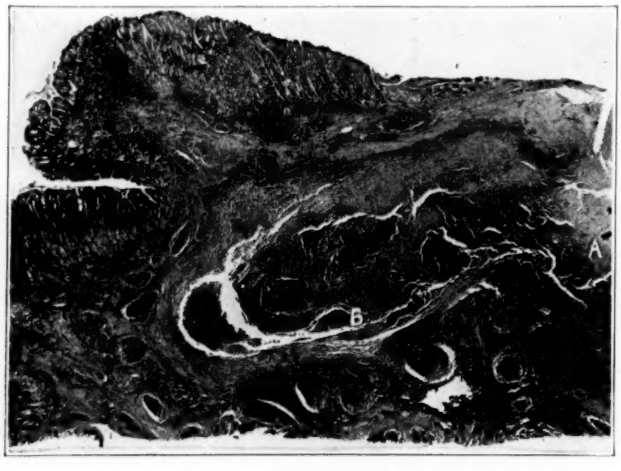

Fig. 1.—Low power magnification of stomach wall showing inflammatory areas characterized by suppuration, productive changes, follicular arrangement of lymphocytes and clusters of actinomyces at *A* and *B*. Hemotoxylin and eosin stain.

reports have increased that figure to nearly a thousand. In 18 per cent of these 670 cases the lesions were intra-abdominal, involving the intestine, appendix or liver, but no stomach involvement was reported. To those engaged in practice for twenty-five years it must seem apparent that the number of reported cases fail to reveal the true incidence of actinomycosis; that surely several thousand cases of actinomycosis of the head and neck, skin and extremities must have been observed during that time.

The reason for reporting a case of primary actinomycosis of the stomach is twofold. In the first place, no cases have been reported in this country, and apparently there is only one authentic case in the European literature. Secondly, there is unquestionable proof that the case here reported was primary in the stomach, the infection later metastasizing to the liver.

REPORT OF CASE

G. E. B., a Scotch die maker, aged 37, who was born in a large town in the iron manufacturing district of Scotland, had served for five years in the tank forces of the British Army, had been gassed several times and had had shrapnel removed from his arms, leg and head in 1914 and 1919. On four occasions his regiment had been almost completely annihilated. Following the war he worked in a factory repairing trucks. He came directly from Europe to Detroit.

Jan. 22, 1931, the patient was admitted to the Jefferson Clinic Hospital complaining of epigastric pain and gas on the stomach, which had bothered him for the previous five months. The attacks of pain began one hour after eating and were relieved by food or baking soda. The bowels were constipated but there was no history of tarry stools or vomiting of blood. There was tenderness on deep pressure just below the xiphoid process. The routine laboratory reports were essentially unimportant. The gastro-intestinal studies, as reported by Dr. W. K. Lim, the roentgenologist, showed some deformity of the stomach which affected passage of the meal through the pylorus but which did not produce obstruction. This was thought to be due to a chronic gastric ulcer.

Operation was performed, Jan. 28, 1931. A supra-umbilical incision was made and a mass occupying the lesser curvature and the posterior wall of the stomach was found. The diagnosis at the operating table was uncertain, but it was thought best to consider the lesion malignant, and a subtotal gastrectomy was performed. The operation was so radical that it was difficult to bring the intestine to the small remaining portion of the stomach. There was no other intra-abdominal pathologic condition, and the liver appeared normal.

The pathologic examination was reported by Dr. O. A. Brines as follows: The stomach wall contained a localized area of thickening 8 cm. in diameter and 2 cm. in maximum thickness. This thickened stomach wall contained several abscess cavities, the largest of which was 1 cm. in diameter. There was no frank ulceration of the mucosa. The microscopic examination showed a chronic granulomatous reaction with dense lymphocytic and plasma cell infiltration, necrosis, suppuration and abscess formation. There was no evidence of new growth involvement or specific type of infection in the sections examined at that time.

The patient's postoperative condition was poor, but he improved later and was discharged, February 26. Two weeks later he was seen at the clinic. At this time he looked bad and felt very weak. He was losing weight; his appetite was poor and he complained of abdominal pain. A check-up gastro-intestinal series showed good passage of meal through the stoma.

He was readmitted to the hospital, March 30, and a diagnosis of subphrenic or hepatic abscess was made. An exploratory laparotomy was performed and the liver was found to contain numerous nodules, some of which exceeded 2 cm. in diameter.

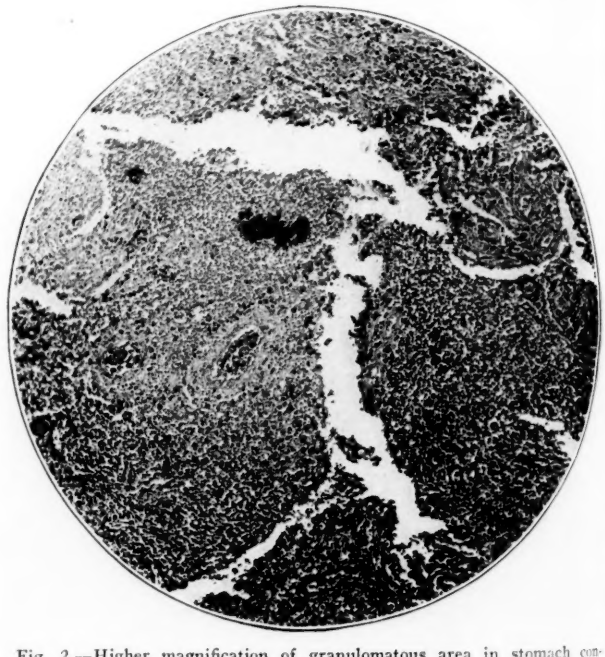

Fig. 2.—Higher magnification of granulomatous area in stomach containing pyemic focus and ray fungus. Gram stain.

The abdominal cavity was explored but there were no other important observations. A biopsy specimen was not taken.

The patient was discharged, May 1. In the interval between his second and final admissions he was quite well until August 1, when diarrhea developed, accompanied by weakness, exhaustion and inability to eat. A marked secondary anemia had developed and he was extremely emaciated and cachetic. No sinus or fistula had formed after either operation. He was readmitted, Aug. 3, 1931, and died the following day.

From the Department of General Surgery, Jefferson Clinic and Diagnostic Hospital.

1. Sanford, A. H., and Voelker, Minna: Actinomycosis in the United States, Arch. Surg. **11**: 809-841 (Dec.) 1925.

The physician who performed the autopsy considered the liver to contain metastatic new growth areas undergoing liquefaction necrosis. Actually these were abscess nodules showing the characteristic honeycombing of actinomycosis. The pathologist, on microscopic examination, found that a diagnosis of actinomycosis of the liver could be made easily. While a review of the original sections from the stomach failed to reveal positive evidence of specific infection, the similarity between the inflammatory reaction in the stomach and the liver tissue was so striking that it was quite apparent that the stomach lesion was also actinomycosis. The original tissue blocks from the stomach were then serially sectioned and out of about 300 slides a dozen were found in which the ray fungus could be identified.

Fig. 3.—Still higher magnification of infected area in stomach wall showing characteristic granulation tissue and a large fungous mass with necrotic center and radially arranged club shaped bodies at the periphery. Gram stain.

COMMENT

In reviewing the subject of intra-abdominal actinomycosis in the literature and in textbooks of surgery and pathology, one finds that actinomycosis of the stomach, if mentioned at all, is spoken of as being exceedingly rare. Wheeler [2] says that ulceration of the duodenum and jejunum from actinomycotic infection is rare and that the stomach is practically immune. It is suggested that the hydrochloric acid in the gastric juice either kills the fungus or inhibits its activity. Nathan,[3] in 1929, reviewed the literature and found only six cases reported as primary actinomycosis of the stomach; namely, (1) Israel's case in 1889, (2) Prutz's case in 1899, (3) Grill's case (date not given), (4) Brunner's case in 1907, (5) Pohl's case in 1912, and (6) Hadjipetros' case in 1920. In commenting on these cases Nathan expressed the belief that Grill could not prove his case, that Prutz could not demonstrate ray fungi in the region of the perforated ulcer and that in his case the possibility of the primary focus being in the large or small intestine had to be considered. He contends that Grill's case was one of actinomycosis of the lung with secondary involvement of the stomach and that, since Pohl based his diagnosis on palpation and on the demonstration of ray fungi in a perigastric abscess, an anatomic diagnosis failed in this case also. He considers Brunner's case as that of a subphrenic abscess, leaving Hadjipetros' case as the only one in which a diagnosis of primary actinomycosis of the stomach was justified.

2. Wheeler, W. I. deC.: Ulceration of Duodenum and Jejunum, Brit. J. Surg. **15**: 430-437 (Jan.) 1928.
3. Nathan, H.: Primary Gastric Actinomycosis, Virchows Arch. f. Path. Anat. **273**: 480-495, 1929.

CONCLUSIONS

1. A proved case of primary actinomycosis of the stomach with metastasis to the liver, reported here, is apparently the second authentic case in the medical literature.

2. A review of both the American and the European literature reveals no cases of primary gastric actinomycosis to have been reported in the United States and that in the six cases reported in the European literature only one survives strict diagnostic scrutiny.

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FOREIGN BODY IN MEDIASTINUM

ESOPHAGOSCOPIC REMOVAL UNDER ROENTGENOSCOPIC GUIDANCE

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AND
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ROCHESTER, MINN.

Mediastinitis following perforation of the esophagus by a foreign body always constitutes a grave surgical problem. Such a complication may be spontaneous or may occur from attempted removal or displacement. The proper procedure in dealing with such a problem is open to much speculation. The situation of the perforation, the degree and extent, whether the foreign body has partially or wholly entered the mediastinum, and its opacity are some of the factors that necessarily influence judgment as to treatment.

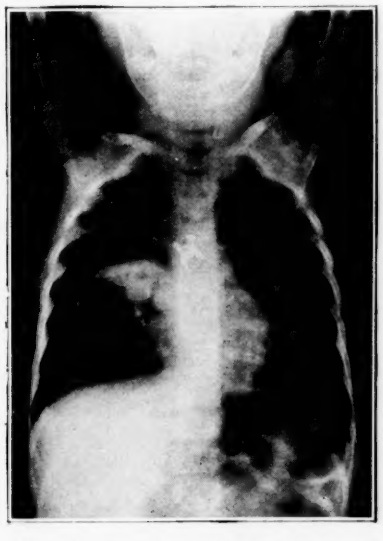

Fig. 1.—June 16, 1932: Toy horse and rider at level of arch of aorta; mediastinitis and inflammatory infiltration of right lung.

Excellent articles have been contributed to the subject of mediastinitis resulting from a foreign body, among which may be mentioned those of Killian,[1] Orton,[2] Iglauer and Ransohoff,[3]

From the Division of Medicine, and the Section on Roentgenology, the Mayo Clinic.
An abstract of this paper was published in the Proceedings of the Staff Meetings, Mayo Clinic **7**: 29 (July 20) 1932.

1. Killian, H.: Beitrag zur operativen Behandlung komplizierter Fälle von Fremdkorpern der Speiseröhre mit besonderer Berücksichtigung der Indikationen, Arch. f. klin. Chir. **122**: 382-443, 1922.
2. Orton, H. B.: Mediastinitis Following Esophageal Foreign Body, Report of Cases, Arch. Otol. **12**: 635-641 (Nov.) 1930.
3. Iglauer, Samuel, and Ransohoff, J. L.: Perforation of the Esophagus by a Foreign Body, with Report of a Case Presenting Unusual X-Ray Signs, Laryngoscope **34**: 821-825 (Oct.) 1924.

Seiffert,[4] Kramer [5] and King.[6] Although considerable emphasis has been placed on external drainage in treatment, the excellent result obtained by drainage through the esophagus does not seem to receive the emphasis it deserves.

The following case constitutes, we believe, a new endoscopic experience in the treatment of a patient and in the removal of a foreign body, which was lying entirely in the mediastinum and which was removed successfully under roentgenoscopic guidance, by means of endoscopy:

REPORT OF CASE

A girl, aged 3 years, began to suffer from dysphagia two months previous to admission to the Mayo Clinic. The dysphagia gradually progressed, failing to respond to various types of medical treatment. The home physician was finally consulted, and he advised roentgenologic examination of the thorax. This revealed a foreign body at about the level of the arch of the aorta and presumably in the esophagus. The child was then referred to the Mayo Clinic for observation and treatment and was first seen by us, June 16, 1932. A week previously, however, mediastinitis and pneumonia had developed, subsided, although the mediastinal infiltration was still present (fig. 2). After surgical consultation, it was felt that an esophagoscopic approach offered the best chance for successful removal of the foreign body. Esophagoscopy was therefore carried out under general anesthesia, induced by the administration of tribrom-ethyl alcohol (avertin) and pentobarbital sodium (nembutal) by rectum. The esophagus was found to be obstructed in its middle third. The place where the foreign body had ulcerated through the esophagus could be visualized readily in the left lateral wall. With the esophagoscope in place, and with a small probe extending down as far as possible into the lumen of the esophagus, it was determined under roentgenoscopic control that the foreign body was to the right of and posterior to the esophagus, the foreign body apparently having worked its way through the mediastinum to this point. An opening was then made through the wall of the esophagus overlying the foreign body, and forceps were introduced into the mediastinum. By means of blunt dissection the foreign body was reached and drawn into the lumen of the esophagus. Because of its size and the many sharp angles present, as well as the danger of lacerating the esophagus higher up by trying to extract it in one piece, the horse was broken into two pieces and easily removed through the esophagoscope. In carrying out this manipulation the rider of the horse was dislodged in the esophagus and passed into the stomach. Further observation revealed that it was passing through the gastro-intestinal tract without difficulty (fig. 3).

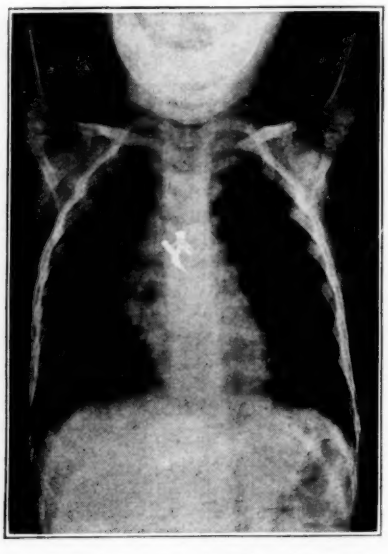

Fig. 2.—July 11, 1932: Toy horse and rider in same position as in figure 1; mediastinal infiltration is still present, but inflammatory reaction has subsided.

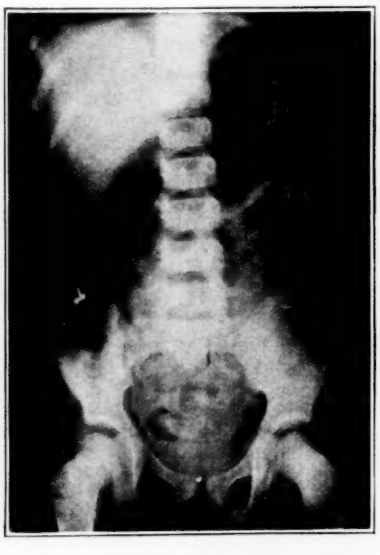

Fig. 3.—Appearance following esophagoscopy: Toy rider in intestinal tract.

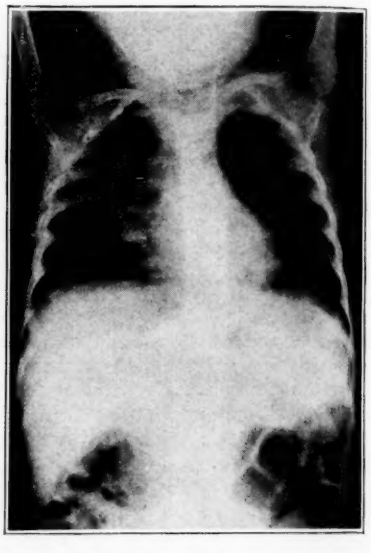

Fig. 4.—Widening of mediastinal shadow, as shown in last roentgenogram made.

both conditions being present at the time of our original examination.

Roentgenograms of the thorax and esophagus disclosed the presence of a toy horse and rider at the point mentioned (fig. 1). There was evidence of mediastinitis and inflammatory infiltration in the right lung. Roentgenoscopic examination revealed that the foreign body was outside the lumen of the esophagus, and this was later confirmed by esophagoscopic examination. Owing to the pulmonary involvement present, it was deemed advisable to postpone an attempt at removal for a time.

The child was permitted to return home and was brought back to the clinic, July 11. At this time she was able to take small sips of fluid, but even this produced severe spasms of coughing and strangulation. The patient was in a very poor condition and much dehydrated. Roentgenograms of the thorax, however, revealed that the inflammatory reaction had

Immediately following esophagoscopy, a temperature of 104 F. developed. However, the temperature returned to normal on the following day, and much to our surprise, the child was able to take liquids without difficulty. Since then, she has been eating without the least evidence of obstruction and she gained 5 pounds (2.3 Kg.) in one week. The last roentgenogram (fig. 4) revealed widening of the mediastinal shadow, probably as a result of manipulation, but the patient has had no further difficulty since then, and no further roentgenograms have been made.

COMMENT

Two things especially deserve emphasis in this case: first, the possibility, and the advisability, of removal of the foreign body by endoscopic means; second, the invaluable aid of roentgenoscopic guidance in finding and removing the foreign body, as it would have been impossible to carry out such a procedure otherwise.

4. Seiffert, A.: Oesophagusschlitzung zur Behandlung frischer vom Oesophagus ansgehender Verletzung des Mediastinums, Arch. f. klin. Chir. **150**: 569-576, 1928.
5. Kramer, Rudolph: Endoscopic Treatment of Esophageal Suppuration, Laryngoscope **39**: 97-102 (Feb.) 1929.
6. King, Edward: Perforation of the Esophagus, with Report of Six Cases, Ann. Otol., Rhin. & Laryng. **38**: 351-359 (June) 1929.

TREATMENT OF PERNICIOUS ANEMIA

EFFECT OF A SINGLE INJECTION OF CONCENTRATED GASTRIC JUICE (ADDISIN)

ROGER S. MORRIS, M.D.; LEON SCHIFF, M.D.
JOHN H. FOULGER, M.D.; MURRAY L. RICH, M.D.
AND
JAMES E. SHERMAN, M.D.
CINCINNATI

It has been demonstrated by Riddle and Sturgis [1] that a single massive dose of liver extract (30 vials) produces a therapeutic effect on pernicious anemia which is approximately that obtained by administering three vials daily for ten days. The large dose, however, produces more active stimulation of the bone marrow. They report the results found in the blood of three patients with pernicious anemia following a single massive dose. In all, large numbers of nucleated red cells appeared in the circulating blood ("blood crisis," "blast crisis") during the first two or three days after the liver extract was given.

In previous communications we [2] have reported the results obtained in pernicious anemia by the intramuscular injection of concentrated gastric juice from man, swine and dogs and have shown that the response is due to the presence in the normal gastric secretions of a powerful hematopoietic substance. Further, we have shown that this substance is thermolabile, dialyzable through collodion, and exhaustible, and more recently we (J. H. F.) have found that it withstands chemical treatment known to destroy enzymes. It is therefore probably a hormone, which we have designated addisin.

The matter of dosage of concentrated gastric juice is only one of many points to be determined. In our first patients, treated with concentrated human gastric

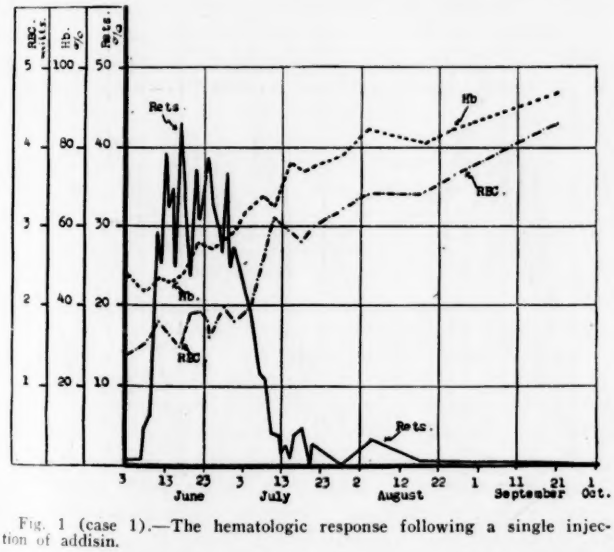

Fig. 1 (case 1).—The hematologic response following a single injection of addisin.

juice and later with concentrated swine gastric juice, frequent intramuscular injections representing relatively small quantities of original gastric juice were employed. Recently, we have adopted a measure of dosage which, though crude, enables one to gain a rough idea of the amount of addisin injected. The material derived from 100 cc. of original gastric contents we have designated as 1 unit. Thus, if a patient is given a concentrate obtained from 3 liters (3,000 cc.) of original juice, he is said to have received 30 units. This standard leaves much to be desired in the way of accuracy, for as yet we have no means of determining the relative potency of various lots of native gastric contents. There are also many factors in concentration which may lessen activity, only some of which, we believe, are known.

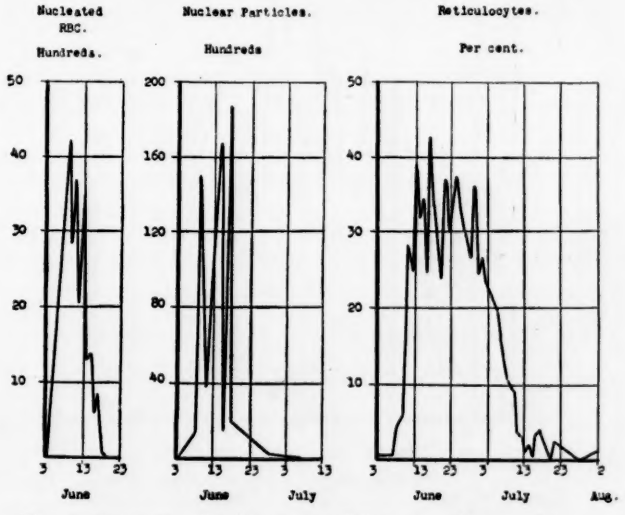

Fig. 2 (case 1).—Graphic representation of evidence of marrow stimulation.

Recently, one of us (J. H. F.) has been subjecting the concentrated swine juice obtained through the cooperation of Dr. E. A. Sharp of Parke, Davis & Co. to further manipulations (to be reported later) in an attempt to obtain greater concentration and purification of the hematopoietic hormone addisin. Thus, it has been possible to obtain a highly concentrated, potent material for intramuscular injection. In one case, for example, 3,200 cc. of native swine juice (lot 844674) was reduced to a volume of 5 cc. for injection (32 units). In another, 5,700 cc. of native swine juice (lot 847519) was reduced to a volume of 8.5 cc. (57 units). A single intramuscular injection of each of these preparations has been given in an untreated case of typical pernicious anemia. It is the hematologic response in these two patients which forms the basis of the present paper.

REPORT OF CASES

CASE 1.—C. S., a white man, aged 65, was admitted to the Cincinnati General Hospital, May 23, 1932. Examination of the blood showed 1.4 million red cells, from 0.6 to 1.3 per cent reticulocytes, 47 per cent hemoglobin (Sahli) and 5,300 leukocytes. No nucleated red cells were seen in smears made on four different days prior to treatment. June 7, an intramuscular injection of 5 cc. was given. This represented material obtained from the concentration and purification of 3,200 cc. of native swine juice (32 units). A remarkable hematologic change set in the following day (charts 1 and 2). June 8, about twenty hours following the injection, there were 4,000 nucleated red cells per cubic millimeter. The following day they reached their maximum, 4,400 per cubic millimeter. The "blood crisis" persisted for twelve days. Coincident with the blood crisis, there appeared in the blood large numbers of erythrocytes containing nuclear particles. These were usually in polychromatophilic cells and were minute, i. e., pin-point in size and, as a rule, single, resembling in all respects Howell-Jolly bodies, except for their smaller size. They reached their maximum on June 17, when they numbered 19,000 per cubic millimeter. The

From the Department of Internal Medicine, University of Cincinnati College of Medicine, and the Medical Clinic, Cincinnati General Hospital.

1. Riddle, M. C., and Sturgis, C. C.: Am. J. M. Sc. **180**: 1 (July) 1930.

2. Morris, R. S.; Schiff, Leon; Burger, George, and Sherman, J. E.: J. Med. **13**: 27 (March) 1932; A Specific Hematopoietic Hormone in Normal Gastric Juice, J. A. M. A. **98**: 1080 (March 26) 1932; Am. J. M. Sc. **184**: 778 (Dec.) 1932.

reticulocytes rose steadily from 4.0 per cent on June 8 to 40.1 per cent on June 13. Instead of the anticipated decrease, however, they remained between 25 and 42.9 per cent (red blood cells 1,500,000) continuously (daily counts) until July 9. By July 13, the reticulocytosis, which lasted over a period of thirty-four days, was ended. There was no noteworthy change in the red cell count until June 28, two weeks after the injection, when they numbered 2.0 million; the hemoglobin was then 56 per cent. Thereafter, there was a steady rise in red count

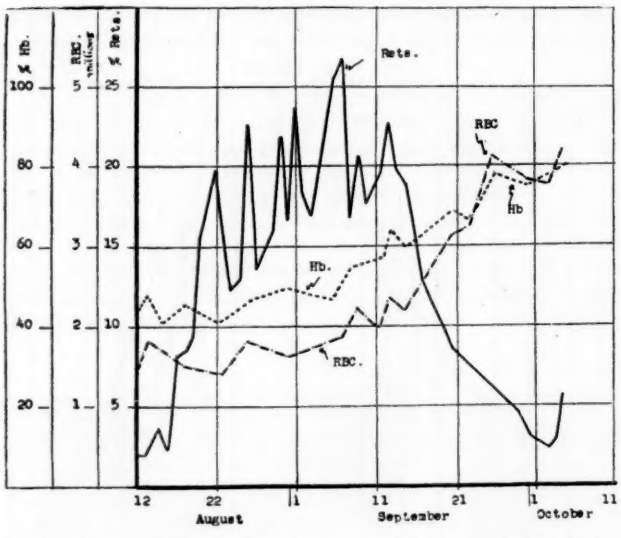

Fig. 3 (case 2).—The hematologic response following a single injection of addisin.

and hemoglobin till September 21, when examination of the blood showed 4.5 million red cells and 93 per cent hemoglobin. Since the original injection on June 8, the patient has received no further treatment. A few days after the onset of the reticulocytosis, there was marked subjective improvement. A maintenance dose (30 units) was injected intramuscularly, September 21. There was no reaction, indicating that anaphylaxis is not produced by concentrated gastric juice of swine, when injected intramuscularly.

CASE 2.—G. V., a white man, aged 65, was admitted to the Cincinnati General Hospital, Aug. 11, 1932. Examination of the blood showed 1.5 million red cells, 2.0 per cent reticulocytes, 44 per cent hemoglobin (Sahli) and 5,500 leukocytes. August 12, he was given a gluteal injection of 8.5 cc. This represented material obtained from the concentration of 5,700 cc. of native swine juice (57 units). The response of the bone marrow to stimulation was less prompt but more prolonged than in the first case (charts 3 and 4). Prior to the injection of addisin, there were 25 nucleated red cells per cubic millimeter. Three days after injection, their number had increased to 465. Daily counts showed 200 or more per cubic millimeter continuously until September 8, a period of twenty-four days. They reached a maximum of 1,550 on August 29. Red cells containing nuclear particles were also present in large numbers, but actual counts were not made as in the first case. The reticulocytes rose to 8 per cent on the fifth day following the intramuscular injection. The increased percentage was present continuously for a period of forty-four days. The greatest number (26.8 per cent with a red count of 2.0 million) was found on September 7, twenty-six days after the injection of addisin. Throughout the period of the reticulocytosis, the eosinophils showed considerable fluctuation. For the greater part of the time there was an eosinophilia of varying degree, the maximum (17 per cent) occurring on August 23, eleven days after injection. This phenomenon was much less pronounced in the first case (maximum, 8 per cent). We have also noted an increase in the eosinophils following the intramuscular injection of concentrated human gastric juice. The red cell count showed a slow rise to 2.2 million on September 9, with 55 per cent hemoglobin. By September 26 it had reached 4.1 million with 78 per cent hemoglobin, without further treatment. Subjective improvement was noted, as in the first case, shortly after evidences of bone marrow stimulation appeared.

COMMENT

The hematologic response in each of the patients following a single intramuscular injection of addisin is unique, so far as we have been able to discover from a study of the literature. The large numbers of nucleated red cells and of red cells containing nuclear particles, with the associated polychromatophilia, and the great increase in percentage of reticulocytes are all indications of an intense stimulation of the bone marrow. Some of these signs have persisted longer than a month. Before the reticulocytosis has come to an end, the red count and the hemoglobin have begun to increase and have gone steadily upward until practically normal figures have been reached. Such results, it should be emphasized again, have followed a single injection of highly concentrated swine juice.

In reviewing the literature, we find that Minot, Murphy and Stetson [3] report a reticulocytosis of twenty-three days' duration with liver therapy. The maximal reticulocyte count was 21 per cent on the fifth and sixth days. For the last twelve days it was 10 per cent or less. They point to the fact that this is an unusually prolonged reticulocytosis in response to liver therapy. In our two cases, reference to the charts shows that the reticulocytosis was not only more prolonged but greater in degree. Whether this will prove to be the rule remains to be seen.

In treating pernicious anemia with concentrated human gastric juice, the best response we obtained was that following an injection of material representing 900 cc. of original juice (9 units). In this instance, however, there was no outpouring of nucleated red cells, though polychromatophilic cells containing nuclear

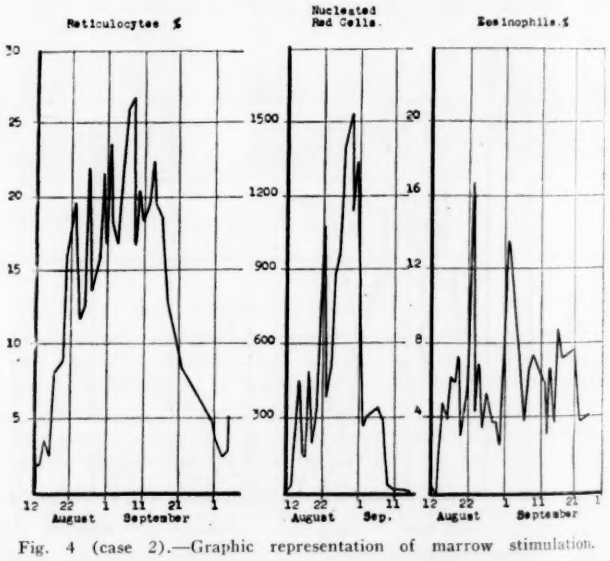

Fig. 4 (case 2).—Graphic representation of marrow stimulation.

particles and reticulocytes were greatly increased. The duration of the response, which began ten hours after the injection, had subsided by the end of six days.

CONCLUSIONS

1. A single intramuscular injection of concentrated gastric juice (addisin) from swine has produced manifestations of intense stimulation of the bone marrow. "Blood crises" lasting twelve and twenty-four days.

3. Minot, G. R.; Murphy, W. P., and Stetson, R. P.: Am. J. M. Sc. **175**: 581 (May) 1928.

accompanied by marked reticulocytosis of thirty-four and forty-four days' duration, respectively, were observed. This phase was followed by more rapid increase in hemoglobin and maturation of the red cells.

2. Coincident with the evidence of stimulation of the bone marrow, marked subjective improvement was noted.

3. In the light of our limited experience, it seems probable that a product can be obtained from the gastric contents of swine of such potency that a single intramuscular injection may be sufficient to bring about a complete remission in pernicious anemia. Should this prove to be true, it seems not unreasonable to predict that one injection of potent material at intervals of two or more months may be all that is required in this disease to maintain the blood count and the hemoglobin at normal levels.

TWO MECHANISMS IN THE PRODUCTION OF DUROZIEZ'S SIGN

THEIR DIAGNOSTIC SIGNIFICANCE AND A CLINICAL TEST FOR DIFFERENTIATING BETWEEN THEM

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The combination of an aortic diastolic murmur and peripheral signs, such as capillary pulse, wide pulse pressure, and Duroziez's sign, readily establishes the diagnosis of aortic insufficiency. In certain instances, however, the diagnosis is beset with difficulties. A diastolic murmur may be heard along the left border of the sternum in a patient with mitral stenosis, and the possibility of this murmur being due to the Graham Steell phenomenon presents itself. Under such conditions the presence or absence of the peripheral signs of aortic regurgitation assumes considerable importance. In other patients the peripheral signs of aortic regurgitation may be clearly evident, but the presence of the diastolic murmur may be doubtful.

Our purpose in this communication is to present the results of a study which permit a clearer understanding of the meaning of peripheral vascular signs and so help to resolve the clinical difficulties mentioned. Duroziez's sign has been the particular focus of this study, but the various peripheral signs tend to be present concomitantly, and so the accurate evaluation of one sign leads to a clearer understanding of the others.

Corrigan,[1] in his classic description of aortic insufficiency, was the first observer to note the presence of a diastolic murmur over the larger vessels. "In the cases where insufficiency is considerable and permits a large quantity of blood to flow back into the ventricle, one hears a double bruit in the ascending aorta." This sign, according to Corrigan, was one of the three vascular signs of aortic insufficiency. The presence of a double murmur heard over the peripheral vessels by pressure of the stethoscope was first described by Bouillaud.[2] It remained for Duroziez,[3] however, to study the phenomenon more closely and correlate its occurrence with the postmortem observations of aortic insufficiency.

In 1861, Duroziez[3] emphasized the diagnostic significance of the phenomenon and said: "The double intermittent crural murmur always accompanies aortic insufficiency; it reveals it in difficult and complicated cases; it is its pathognomonic sign. Now this has not been said by any author—I am going to prove it." In the course of his communication, Duroziez modified this somewhat dogmatic statement by mention of patients with enteric fever, saturnism and chlorosis, in whom the sign was present even in the absence of aortic regurgitation. In the years since, clinical observations have made it increasingly evident that, while Duroziez's sign usually can be elicited in patients with the intracardiac signs of aortic insufficiency, these phenomena are mutually independent—one may be present without the other. The diagnostic significance of Duroziez's sign consequently has occasioned considerable discussion and investigation.

Tice,[4] in 1911, made a valuable clinical contribution on the significance of the peripheral signs of aortic insufficiency. In a series of 124 cases of aortic insufficiency, the presence of Corrigan's pulse was observed in 95 per cent of the cases; capillary pulsation, 90 per cent; Duroziez's sign, 88 per cent; visible arterial pulsation, 76 per cent; pistol shot sound, 45 per cent, and femoral tones, 24 per cent. He stated that Duroziez's sign is not pathognomonic of aortic insufficiency but that it is also observed in other diseases with perfectly normal and competent valves. His concept of the mechanism whereby the double murmur is produced is not clear. "The essential portion of the phenomenon, the cardiodiastolic or arteriodiastolic, results from the backward flow of blood, produced chiefly by the vasomotor dilatation."

More recently, Laubry, Brosse and van Bogaert[5] have reported an extensive study of Duroziez's sign.

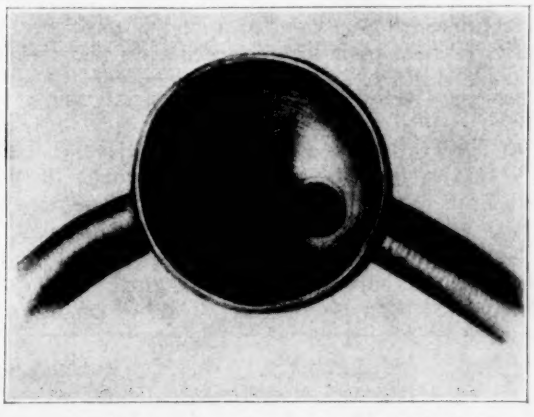

Fig. 1.—The Peabody bell stethoscope. The well defined edges and the absence of a diaphragm facilitate the production of diastolic arterial murmurs.

They state that perception of Duroziez's sign on simple auscultation over the femoral artery by compressing it only with the aid of the stethoscope and without resorting to any other technic is pathognomonic of aortic insufficiency. They corroborated Duroziez's original observations that in certain other conditions the sign may be produced by digital compression of

From the Medical Research Laboratories of the Beth Israel Hospital and the Department of Medicine, Harvard University Medical School.
This investigation was aided in part by a grant from the DeLamar Mobile Research Fund of Harvard University.

1. Corrigan, D. J.: On Permanent Patency of the Mouth of the Aorta, or Inadequacy of the Aortic Valves, Edinburgh M. & S. J. **37**: 225, 1832.
2. Bouillaud, J. B.: Maladies du coeur, ed. 2, 1841; cited by Duroziez.[3]
3. Duroziez, P. L.: Du souffle intermittent crural, comme signe de l'insuffisance aortique, Arch. gén. de méd. **17**: 417, 588, 1861.
4. Tice, Frederick: The Clinical Determination and Significance of Some of the Peripheral Signs of Aortic Insufficiency, Illinois M. J. **20**: 271, 1911.
5. Laubry, C.; Brosse, Mlle. T., and Bogaert, van A.: Doubles tons et doubles souffles vasculaires au cours de l'insuffisance aortique, Ann. de méd. **30**: 193 (Oct.) 1931.

the artery peripheral to the site of auscultation. They also report that compression of the artery below the point auscultated by means of a pneumatic cuff inflated to arterial systolic pressure may elicit the sign in conditions other than aortic insufficiency. The mechanism of the sign, according to these authors, is the same in all conditions, the diastolic murmur being due to a diastolic reflux of blood backward toward the heart. They regard local conditions, particularly "hypotonicity of the arterial wall," indispensable to its production.

Duroziez's original description referred to observations over the femoral artery, but clinical usage has sanctioned the wider application of this sign to a diastolic murmur heard over any of the larger peripheral vessels when pressure is exerted on the artery by means of the stethoscope.[6] In the present communication the term "Duroziez's sign" is used in this wider sense. In some of our subjects, observations were made over both the brachial and the femoral arteries; in others, observations were confined either to the brachial or to the femoral blood vessels. We have used the Peabody bell stethoscope[7] (fig. 1) during the course of this investigation because it seemed most suited to the elucidation of the phenomena under investigation. The standard mercury sphygmomanometer was used in all the observations. For application of pressure to the forearm, a cuff 14 cm. wide was used. A special cuff 20 cm. in width was used in applying pressure to the thigh. All the observations recorded in this communication were checked by two observers.

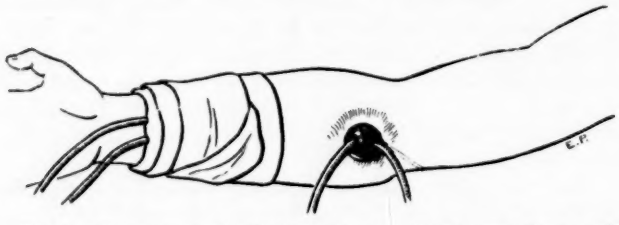

Fig. 2.—The manner of applying pressure to the forearm distal to the point of auscultation. This procedure accentuates the diastolic arterial murmur of aortic insufficiency but diminishes or abolishes the diastolic arterial murmur of other conditions.

OBSERVATIONS

Our observations demonstrate, we believe, that Duroziez's sign, a diastolic murmur heard over the larger arteries on pressure with the stethoscope, is heard in two entirely different types of conditions. The mechanisms by which the sign is produced in these two conditions are opposite in nature and can be differentiated with ease at the bedside by certain simple clinical tests.

Patients with Marked Peripheral Vasodilatation.—In twelve of twenty consecutive patients with thyrotoxicosis (table 1), a definite diastolic murmur was heard over the brachial or femoral arteries by pressing on the vessel with a stethoscope. In other patients with arterial hypertension and with generalized arteriosclerosis and in patients with fever, the sign also was elicited. We believe that in these patients the diastolic arterial murmur was due to an increased forward flow of blood toward the periphery during diastole. Normally, the rate of blood flow through the arteries, arterioles and capillaries is greatest during systole and less during diastole. In patients with increased local blood flow associated with peripheral vasodilatation, blood flow during diastole may be greatly increased and give rise to the diastolic murmur when the artery is stenosed by the stethoscope. The evidence for this concept is as follows:

1. If a stethoscope is placed over the brachial artery in the antecubital space and a blood pressure cuff is wrapped about the middle of the forearm above the wrist (fig. 2), inflation of the cuff to a pressure definitely below the diastolic level will completely abolish the diastolic murmur. Inflation of the cuff raises the pressure of the blood in the veins almost to the level of diastolic arterial pressure and so substitutes an artificial increase in the peripheral resistance for the low peripheral resistance of vasodilatation. The diastolic forward flow of blood is evidently more affected than the systolic forward flow of blood, for the diastolic murmur disappears and the systolic murmur diminishes somewhat in intensity. In conformity with these considerations, we have observed on numerous occasions that with the cuff inflated at a low pressure the diastolic murmur would disappear gradually in from ten to fifteen beats, while with pressures close to arterial diastolic the murmur would vanish in from one to three beats.

2. Simple immersion of the arm of the patient in cold water abolishes the diastolic murmur over the brachial artery quite as effectively as application of the blood pressure cuff. Immersion in hot water accentuates the diastolic murmur. Immersion of the arm up to a level some 15 to 20 cm. below the area auscultated is sufficient to bring about these changes. The importance of local changes in the wall of the artery is, contrary to the opinion of others,[6] therefore negligible. The appearance and disappearance of the murmur under such circumstances is evidently related to the degree of peripheral vasodilatation, vasodilatation permitting a marked increase in diastolic blood flow, and vasoconstriction resulting in a marked decrease in diastolic blood flow. The close relation between the state of the smaller peripheral vessels and the presence of the diastolic murmur is further shown by the fact that in certain subjects, in whom the vasomotor system was irritable (flushing, sweating), the murmur showed considerable variation.

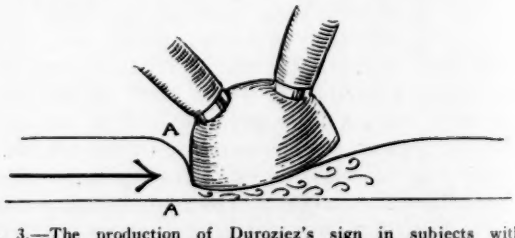

Fig. 3.—The production of Duroziez's sign in subjects with predominant vasodilatation. The arrow indicates the direction of blood flow toward the hand or foot during diastole. Pressure with the upper edge of the stethoscope is the most effective means of producing the eddy currents that give rise to the diastolic arterial murmur.

3. Immersion of the arms of normal subjects in hot water at 114 F. or exposure to high room temperature causes peripheral vasodilatation and results in the appearance of a diastolic murmur over the brachial arteries similar in all respects to that heard in patients with spontaneous vasodilatation (table 1). As in the case of spontaneous vasodilatation, this murmur is readily diminished or abolished by application of subdiastolic pressure to the forearm.

4. That the diastolic murmur is produced by a diastolic flow of blood forward toward the periphery is further shown by the fact that pressure on the artery

6. White, P. D.: Heart Disease, New York, Macmillan Company, 1931.

7. Manufactured by George P. Pilling and Son Company, Philadelphia.

predominantly with the upper edge of the stethoscope is far more effective in eliciting the sign than pressure with the lower edge of the stethoscope (fig. 3). This is in accord with the widely accepted concept that murmurs are produced mainly by eddies in the current when the cross sectional diameter of the stream is suddenly increased. The eddy currents are produced mainly at *A* in figure 3 and give rise to a murmur immediately beneath the stethoscope. If the flow of blood were in the reverse direction, the situation would be as shown in figure 4. The eddy currents would be produced mainly at *B*, beyond the area included by the bell of the stethoscope, and the murmur would be

Fig. 4.—Production of the diastolic arterial murmur in peripheral vasodilatation by pressure with the upper edge of the stethoscope is inconsistent with a backward flow of blood during diastole. With pressure applied in this manner, a backward flow of blood would give rise to eddy currents beyond the area included under the bell of the stethoscope, and a diastolic murmur would be faint or inaudible.

fainter or inaudible. Actual observations substantiate these considerations.

5. In congenital phlebarteriectasis the blood flow of the affected extremity is greatly increased because of free artery to vein communications, and a diastolic murmur may be elicited by pressure with a stethoscope over the principal arteries. We recently studied a patient with this condition [8] and concluded that (*a*) there was a greatly increased blood supply to the extremity and (*b*) the diastolic murmur was due to an increased forward flow of blood during diastole.

6. The diastolic murmur tends to be transmitted toward the periphery rather than centrally. While the sign was produced in the antecubital fossa by one observer, the murmur was sometimes heard by a second observer over the radial, but not over the brachial, artery. This is in accord with our concept, for arterial murmurs tend to be transmitted in the direction of blood flow.

Patients with Aortic Regurgitation.—In patients with aortic regurgitation, the diastolic arterial murmur produced by pressure on the artery with the stethoscope sounds like that heard in other conditions. The mechanism of Duroziez's sign in patients with aortic regurgitation is directly opposite, however, to that of Duroziez's sign in subjects with other conditions. This is shown by the following tests:

1. If subdiastolic pressure is applied to the forearm or thigh while one listens over the brachial or femoral arteries, the murmur, instead of disappearing, is strikingly accentuated (table 2). The rise in peripheral resistance resulting from the application of pressure favors the backward flow of blood.

2. The diastolic murmur is brought out or accentuated not by pressure with the upper edge but by pressure with the lower edge of the stethoscope (fig. 5). In aortic insufficiency, the direction of arterial blood flow in diastole is the reverse of that present in other subjects with Duroziez's sign, and the technic of accentuating the murmur is the opposite.

3. In aortic regurgitation, simple immersion of the arm in cold water tends to accentuate the diastolic murmur. The peripheral resistance is increased and reflux of blood toward the heart during diastole is favored. This reflux [9] may be a result of structural changes in the semilunar valves or a result of relative insufficiency of the valves due to dilatation of the aortic ring.

4. Application of the blood pressure cuff inflated to subdiastolic pressure not only accentuates Duroziez's sign when already present in aortic insufficiency but in certain patients it will even cause the diastolic murmur to appear. In subjects in whom the arterial diastolic pressure is only 0 to 20 mm. of mercury, a pressure of 20 to 30 mm. may be applied instead of subdiastolic pressure.

COMMENT

The divergent views in regard to the significance of Duroziez's sign and the mechanism of its production are more easily understood on the basis of the foregoing observations. Duroziez's sign denotes a flow of blood in the artery beneath the stethoscope during diastole. By itself the sign does not tell whether the diastolic flow of blood is toward the periphery, as in subjects with peripheral vasodilatation and competent aortic valves, or backward toward the heart, as in aortic insufficiency. The direction of the diastolic flow, and hence the diagnostic significance of the sign, must be decided by application of subdiastolic pressure distal to the point of auscultation.

As might be expected, in patients with aortic insufficiency the effect of immersing the arm in hot water varies. In some subjects the diastolic murmur is accentuated, in others diminished, according to whether there is a predominance of the one factor, aortic insufficiency, favoring a reflux of blood, or a predominance of the other factor, vasodilatation, favoring a forward diastolic flow of blood.

Much of the discussion in regard to the clinical significance of capillary pulsation and Duroziez's sign has been due to the lack of knowledge concerning the physiologic mechanisms involved in the production of these signs. It has become increasingly apparent that

Fig. 5.—The production of Duroziez's sign in subjects with aortic insufficiency. The arrow indicates backward flow of blood toward the heart during diastole. Pressure with the lower edge of the stethoscope is the most effective means of producing the eddy currents which give rise to the diastolic arterial murmur beneath the bell of the stethoscope.

capillary pulsation is not necessarily associated with aortic reflux but is an expression of the local dilatation of the peripheral minute vessels.[10] As Lewis [11] states,

8. Blumgart, H. L., and Ernstene, A. C.: Hemangiectatic Hypertrophy and Congenital Phlebarteriectasis, with Particular Reference to the Diagnostic Importance of the Peripheral Vascular Phenomena, Arch. Int. Med. **49**: 599 (April) 1932.

9. Wiggers, C. J.; Theisen, Harold, and Williams, H. A.: Further Observations on Experimental Aortic Insufficiency: II. Cinematographic Studies of Changes in Ventricular Size and in Left Ventricular Discharge, J. Clin. Investigation **9**: 215 (Oct.) 1930.

10. Quincke, H. I.: Ueber Capillarpuls und centripetal Venenpuls, Berl. klin. Wchnschr. **27**: 265, 1890. Glaessner, K.: Klinische Untersuchungen über den Kapillarpuls, Deutsch. Arch. f. klin. Med. **97**: 83, 1909. Herz, M.: Der Puls der kleinsten Gefässe, Wien. Klin. **22**: 165, 1896. Lewis, Thomas: Studies of Capillary Pulsation, with Special Reference to Vasodilatation in Aortic Regurgitation and Including Observations on the Effects of Heating the Human Skin, Heart **11**: 151 (April) 1924.

11. Lewis, Thomas: The Blood Vessels of the Human Skin and Their Responses, London, Shaw & Sons, Ltd., 1927.

"even in disease of the aortic valves the pulsation is much more dependent upon a strictly local condition of the blood vessels than upon change in the general arterial blood pressures arising out of the valve injury." The presence of capillary pulsation must therefore be regarded as indicating peripheral vasodilatation in the part studied; but whether this vasodilatation is the result solely of local conditions (increased skin temperature) or whether it is a secondary consequence of aortic insufficiency cannot be ascertained on the basis of the sign alone. Similarly, Duroziez's sign as usually elicited simply denotes an increased blood flow in the artery beneath the stethoscope during diastole but does not indicate whether blood flow occurs in a forward direction because of preponderant vasodilatation or backward toward the heart because of aortic reflux. The tests we have outlined enable one to decide these questions and are of value in differentiating aortic insufficiency from other conditions. They permit one to attach greater diagnostic significance to peripheral diastolic arterial murmurs than is at present possible in the case of capillary pulsation.

SUMMARY AND CONCLUSIONS

1. Duroziez's sign, one of the so-called peripheral signs of aortic regurgitation, may be present in patients with competent aortic valves.

2. A study of Duroziez's sign has shown that it occurs in two entirely different conditions and that the two mechanisms producing the sign are opposite in nature and can be differentiated with ease at the bedside by certain simple clinical tests.

3. In patients with preponderant peripheral vasodilatation (thyrotoxicosis, anemia, fever, normal subjects with increased local blood flow due to immersion of the limb in hot water), the diastolic arterial murmur is due to an increased forward flow of blood toward the periphery during diastole.

4. In patients with aortic regurgitation, the diastolic arterial murmur elicited by pressure on the artery with

TABLE 1.—*Observations on Duroziez's Sign in Subjects Without Aortic Insufficiency*

Subject	Sex*	Age, Years	Diagnosis	Pulse Rate per Minute	Arterial Pressure		Capillary Pulsation	Duroziez's Sign				Comment†
					Systolic, Mm. Hg	Diastolic, Mm. Hg		Present	Brought Out by Hot Water	Subdiastolic Pressure Test: Pressure Applied, Mm. Hg	Subdiastolic Pressure Test: Effect on Diastolic Murmur	
H. D.	♂	36	Thyrotoxicosis	94	124	68	+	+	..	40	Abolished	Basal metabolic rate +30%
F. J.	♂	45	Thyrotoxicosis	112	116	74	+	+	..	60	Abolished	Basal metabolic rate +68%
M. R.	♀	43	Thyrotoxicosis	90	128	82	+	0	+	80	Abolished	Basal metabolic rate + 8%
S. C.	♀	30	Thyrotoxicosis	120	134	88	+	+	+	60	Abolished	Basal metabolic rate +39%
C. E.	♀	25	Thyrotoxicosis	124	108	72	+	+	+	40	Abolished	Basal metabolic rate +35%
E. S.	♀	63	Thyrotoxicosis	100	150	86	+	0	..	..	.....	Basal metabolic rate +51%
A. B.	♀	53	Thyrotoxicosis	128	134	70	0	0	..	..	.....	Basal metabolic rate +34%
M. B.	♀	42	Thyrotoxicosis	128	126	62	+	+	..	60	Abolished	Basal metabolic rate +26%
M. V.	♀	46	Thyrotoxicosis	120	112	56	+	0	..	..	.....	Basal metabolic rate +31%
A. C.	♂	45	Thyrotoxicosis	100	118	68	+	+	..	60	Abolished	Basal metabolic rate + 9%
E. P.	♀	19	Thyrotoxicosis	84	110	56	+	+	..	40	Abolished	Basal metabolic rate +16%
R. G.	♀	14	Thyrotoxicosis	96	128	56	+	+	..	..	.....	Basal metabolic rate +13%
D. M.	♀	32	Thyrotoxicosis	80	116	64	+	+	..	60	Abolished	Basal metabolic rate +13%
A. D.	♀	16	Thyrotoxicosis	134	126	74	+	0	..	..	.....	Basal metabolic rate +40%
M. C.	♀	41	Thyrotoxicosis	82	136	72	0	0	..	..	.....	Basal metabolic rate +11%
I. L.	♀	40	Thyrotoxicosis	82	130	74	0	0	..	..	.....	Basal metabolic rate +13%
H. B.	♂	40	Thyrotoxicosis	110	162	82	+	+	+	60	Abolished	Basal metabolic rate +38%
J. K.	♀	30	Thyrotoxicosis	100	138	72	+	+	..	60	Abolished	Basal metabolic rate +38%
M. S.	♀	48	Thyrotoxicosis	112	128	68	+	+	..	50	Abolished	Basal metabolic rate +41%
S. R.	♀	50	Thyrotoxicosis	108	126	70	+	0	..	..	.....	Basal metabolic rate +20%
S. T.	♂	51	Chronic nephritis; hypertension	64	190	102	+	+	+			
L. B.	♀	32	Chronic nephritis; hypertension	96	256	154	0	0	+			
N. F.	♂	59	Generalized arteriosclerosis; secondary anemia	92	98	42	+	+	..	40	Abolished	Oral temperature 100.2 F.
I. R.	♀	48	Carcinoma of the colon	120	110	70	+	+	..	40	Abolished	Oral temperature 102.6 F.
B. M.	♂	20	Normal	92	108	76	0	0	+	70	Abolished	
A. E.	♂	30	Normal	126	70	80	+	+	..	40	Abolished	Room temperature 80 F.
B. A.	♂	23	Normal	76	120	84	+	+	+	80	Abolished	Room temperature 86 F.
J. R.	♂	29	Normal	80	120	90	+	+	+	60	Abolished	Room temperature 86 F.
D. G.	♀	30	Normal	100	110	70	..	+	+	..	.....	Room temperature 86 F.
B. S.	♀	22	Normal	76	120	82	0	0	+	60	Abolished	Room temperature 85 F.
J. M.	♂	18	Normal	68	122	78	+	+	+	70	Diminished	Room temperature 85 F.

* In the tables, ♂ denotes male; ♀, female.

† The basal metabolic rates recorded were obtained, except in two instances, within one day of the time of making the observations on Duroziez's sign.

TABLE 2.—*Observations on Duroziez's Sign in Subjects With Aortic Insufficiency*

Subject	Sex	Age, Years	Diagnosis	Pulse Rate per Minute	Arterial Pressure		Capillary Pulsation	Duroziez's Sign		
					Systolic, Mm. Hg	Diastolic, Mm. Hg		Present	Subdiastolic Pressure Test: Pressure Applied, Mm. Hg	Subdiastolic Pressure Test: Effect on Diastolic Murmur
H. G.	♂	27	Rheumatic heart disease	80	170	0	+	+	30	Increased
B. A.	♂	26	Rheumatic heart disease; subacute bacterial endocarditis	88	128	42	+	+	30	Increased
I. S.	♂	18	Rheumatic heart disease	84	122	30	+	+	60	Increased
L. C.	♂	20	Rheumatic heart disease	72	136	0	+	+	40	Increased
S. N.	♂	11	Rheumatic heart disease	126	122	0	+	0	60	Produced
M. S.	♀	44	Rheumatic heart disease	76	142	70	+	0	70	Not produced
P. A.	♂	29	Rheumatic heart disease	80	124	44	+	+	40	Increased
R. C.	♂	65	Syphilitic aortitis	92	168	90	+	+	70	Increased
G. R.	♂	52	Syphilitic aortitis	96	184	64	+	+	54	Increased
D. M.	♂	58	Syphilitic aortitis	76	174	36	+	+	30	Increased

the stethoscope is similar to that heard in other conditions, but it is due not to a forward flow of blood but to a backward flow of blood during diastole toward the heart.

5. In patients with aortic regurgitation the diastolic murmur may be strikingly accentuated by pressing predominantly with the lower edge of the stethoscope bell, by immersing the arm in cold water, or by applying a cuff inflated to subdiastolic pressure to the limb below the site of auscultation.

6. In patients with preponderant peripheral vasodilatation the diastolic murmur is increased by pressure with the upper edge of the stethoscope, while the murmur is abolished by immersion of the limb in cold water or by application of subdiastolic pressure distal to the site of auscultation.

7. Duroziez's sign as classically elicited simply denotes, therefore, an increased flow of blood in the artery beneath the stethoscope during diastole but does not indicate whether blood flow occurs in a forward direction toward the periphery because of preponderant vasodilatation or backward toward the heart because of aortic reflux. The tests we have outlined enable one to decide these questions and are of value in differentiating aortic insufficiency from other conditions.

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DIABETIC OR MYCOTIC VULVOVAGINITIS

PRELIMINARY REPORT

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According to gynecologic textbooks, monographs and articles,[1] diabetic genital pruritus and vulvovaginitis are produced by dextrose or other substances in abnormal amounts in the urine. However, the following observations indicate that Eumycetes (fungi) are in most instances the etiologic agent, which is in accord with the statement by Plass, Hesseltine and Borts[2] that "pregnancy and diabetes are predisposing factors" for such infection. Although the reasons for this predilection are not completely known, it is obvious that with the constant spill of excessive dextrose over the vulva a satisfactory medium is created, especially since students[3] in this field have shown that the pathogenic yeasts thrive on dextrose and levulose in the presence of acid.

While the proponents of urinary irritants are supported in their view by local improvement simultaneously with control of the diabetic state, I believe that the fungi cease producing symptoms because of an inadequate medium (cessation of glycosuria). Genital mycoses explain more readily why pruritus and vulvitis continue in some individuals in spite of diet and insulin, or why fungicidal therapy alone completely cures the genital disease.

The clinical appearance of yeast infections of the vulva have been described by Plass and his co-workers.[2] Briefly, the tissues are reddened and are usually edematous, sometimes covered with thrush patches, caseous material or again only with an excessive discharge. The leukorrhea not infrequently contains minute flakes and sometimes bubbles. If the disease is of long duration, the skin of the labia and groin may be reddened, or thickened, roughened and "bronzed." Not infrequently, excoriations or localized desquamation are observed; the former may be the result of local tissue sensitization or toxic necrosis, while the latter is caused by the extensive scratching. With such pathologic tissue changes, an ample portal of entry is available for staphylococci, streptococci, certain diplococci, or other bacteria which may grow in the presence of these yeasts. The symptoms of itching and local discomfort may vary from a mild to a most distracting and sleep disturbing complication.

TABLE 1.—*New Diabetic Patients with Pruritus*

	Fungi		
	Present	Absent	Total
With glycosuria	15	0	15
With no glycosuria	3	3	6
Total	18	3	21

Since typical thrush patches are less often present and direct smear of the vulvovaginal discharge and lesions may not reveal the presence of mycelia (hyphae) and conidia, cultures are without question the most reliable diagnostic procedure.[4] The treatment consists of semiweekly vulvovaginal application of 1 per cent gentian violet (in an aqueous or glycerin vehicle) or of diluted iodine solution, and daily 1 per cent sodium bicarbonate vaginal douches.[2]

OBSERVATIONS, EXPERIMENTS AND COMMENT[5]

This study included only those diabetes mellitus patients who had genital itching or infection. The age incidence varies from 12 to the late seventies. Two of the younger patients had not menstruated, yet their development was such that menstruation could be expected at any time. Table 1 shows that in eighteen of the twenty-one cases fungi were present. In one of the three negative cases, the patient had applied a heavy ointment which interfered with the obtaining of a satisfactory culture, and unfortunately she has not

TABLE 2.—*Yeast—Classified* *

Saccharomyces	1
Cryptococcus	1
Endomyces	6
Monilia	1
Yet undetermined	3
Lost	2

* This includes only those cultures collected at the University of Chicago.

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This study was supported in part by funds from the Josiah Macy, Jr., Foundation.

1. Anspach, B. M.: Gynecology, ed. 3, Philadelphia, J. B. Lippincott Company, 1927, p. 170. Crossen, H. S., and Crossen, R. J.: Diseases of Women, ed. 7, St. Louis, C. V. Mosby Company, 1930, p. 268. Graves, W. P.: Gynecology, ed. 4, Philadelphia, W. B. Saunders Company, 1928, p. 262. Long, Margaret, and Downie, Ewen: Pruritus Vulvae in Relationship to Intermittent Glycosuria, M. J. Australia **1**: 721 (June 13) 1931. Miller, C. J.: An Introduction to Gynecology, St. Louis, C. V. Mosby Company, 1931, p. 107. Polak, J. O.: Pelvic Inflammations in Women, vol. 9, Gynecological and Obstetrical Monographs, New York, D. Appleton & Co., 1931, p. 9. Rubin, I. C.: Symptoms in Gynecology: Etiology and Interpretation, vol. 3, Gynecological and Obstetrical Monographs, p. 220. Taussig, F. J.: Diseases of the Vulva, vol. 13, Gynecological and Obstetrical Monographs, p. 210.

2. Plass, E. D.; Hesseltine, H. C., and Borts, I. H.: Monilia Vulvovaginitis, Am. J. Obst. & Gynec. **21**: 320 (March) 1931.

3. Castellani, Aldo: J. Trop. Med. **23**: 101-138 (May 1) 1920. Castellani, Aldo, and Chalmers, A. J.: Manual of Tropical Medicine, ed. 3, New York, William Wood & Co., 1920, p. 1079. Plass, Hesseltine and Borts (footnote 2).

4. Hesseltine, H. C.; Plass, E. D., and Borts, I. H.: Pathogenicity of the Monilia (Castellani)-Vaginitis and Oral Thrush, to be published.

5. The material for this study was obtained through the courtesy of the following departments of medicine and men therein: 1. University of Iowa, seven cases, F. M. Smith and C. W. Baldridge (taken from the tables of Plass, Hesseltine and Borts). 2. University of Chicago (Ogden), six cases, Louis Leiter and H. L. Schmitz. 3. University of Chicago (Rush), eight cases, R. T. Woodyatt and L. K. Campbell.

been accessible for further study. Yeasts were found in all the fifteen glycosuric patients.

The yeasts so far identified belong to the genera Saccharomyces, Cryptococcus, Endomyces and Monilia. Table 2 gives the distribution and indicates that Endomyces is the most frequent offender. The fermentation reactions are employed for further identification in each genus, but they will be reported in a separate communication. However, these organisms behave much like those yeasts which were used [4] in demonstrating pathogenicity through human inoculation.

TABLE 3.—*Results Obtained in Six Patients*

Patient	Diagnosis	Days of Test	Irritation Pruritus	Clinical Changes in Tissue
1	Pregnancy with cardiac lesion.....	5	No	No
2	Pregnancy; pulmonary tuberculosis.	21	No	No
3	Acute salpingo-oophoritis; bed rest only	14	No	No
4	Threatened premature labor.....	5	No	No
5	Pregnancy toxemia.....	10	No	No
6	Threatened premature labor; very mild vulval mycosis	1½	Severe irritation started immediately	Typical mycosis

If dextrose is the etiologic agent of diabetic vulvitis, one must explain the absence of symptoms in so many diabetic patients with considerable spill of dextrose. Furthermore, diabetic children would be prone to have this disease, since their tissues are not so resistant; yet they rarely suffer from the condition called "diabetic vulvitis." This observation likewise agrees with the rareness of vulval mycoses before the adolescent period. In all likelihood, the less acid reaction of the vulvovaginal secretion in girls is equivalent to a prophylactic state. If it is dextrose in the urine that causes the vulvitis, one should be able to reproduce experimentally a "diabetic vulvitis" in normal individuals by bathing the external genitalia with such a solution. According to Hawk and Bergeim,[6] a 10 per cent concentration is unusual and 100 Gm. an infrequent twenty-four hour output of dextrose. Then, by using 250 cc. of a 10 per cent solution at 6 and 10 a. m. and 2, 6 and 10 p. m. as a vulval wash (simulating a micturition), both the concentration and the amount of the monosaccharide are comparable to a very severe diabetic state.

Table 3 gives the results obtained in six patients, one of whom had a yeast present. This group received no vulval manipulation or treatment and was under our constant observation. In the first five no symptoms or clinical evidence of irritation developed, but in the sixth patient (fungi present) seven vulval washes converted a very mild itching into an acute severe vulvitis, which persisted for one week, when fungicidal therapy promptly cured it. Heretofore, the associated recurrence of the genital disease and glycosuria seemed to indicate the etiologic agent, but from the foregoing observation it is not difficult to understand how a symptom free carrier of pathogenic fungi (which may be for months) may have the reappearance of the pruritus and vulvitis whenever the environment favors a mycosis.

If diabetic vulvitis is a mycosis and since such organisms are transmitted occasionally by sexual congress,[7] a few of the husbands should present evidence of an infection. In this group, two patients stated voluntarily that their husbands had a temporary irritation of the phallus following each coitus. This certainly might be a transient fungous infection, since the repetition of this reaction was lost with the relief of the vulval symptoms (neither husband was accessible for examination).

Possibly other substances in the urine are direct etiologic agents, but in this series there is not a consistent relationship of acetone and diacetic acid to the symptomatology.

CONCLUSIONS

Even though this series is not large enough to warrant conclusions, certain impressions exist:

1. Diabetic vulvovaginitis is an infection, usually a mycosis, and rarely, if ever, an irritation from products in the urine.
2. Glycosuria supplies an adequate medium for a vulval mycosis.
3. Fungicidal therapy cures "diabetic" pruritus and vulvitis.
4. Synthetic glycosuria does not produce pruritus or vulvitis.

6. Hawk, P. B., and Bergeim, Olaf: Practical Physiological Chemistry, ed. 10, Philadelphia, P. Blakiston's Son & Co., 1931, p. 745.

7. Castellani, Aldo: Fungi and Fungous Diseases (Adolph Gehrmann Lectures of the University of Illinois College of Medicine, 1926, p. 139); Arch. Dermat. & Syph. **16**: 383 (Oct.), 571 (Nov.), 714 (Dec.) 1927; **17**: 61 (Jan.), 194 (Feb.), 354 (March) 1928.

THE USE OF FRESH HUMAN SERUM (COMPLEMENT) IN MENINGOCOCCUS MENINGITIS

REPORT OF A CASE

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In 1908 the successful treatment of ten out of sixteen cases of acute meningococcus meningitis by means of fresh human serum (without the addition of antiserum) given intraspinally was reported by McKenzie and Martin.[1] They used normal, convalescent and patients' serums and extended their study by showing that each serum, in vitro, exerted a meningococcidal power by means of a thermolabile constituent. In 1916, Fairley and Stewart [2] added fresh human (convalescent) serum to antimeningococcus serum before intraspinal administration and reported seven recoveries out of ten acute cases thus treated. Two years later, Kolmer and his associates [3] showed by well controlled experiments that the addition of normal active human or guinea-pig serum to antimeningococcus serum definitely increased

Agglutinating Titers of Six Samples of Serum

		Agglutination Tests. Type II* Meningococcus							
Antiserum	Designation	1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512
N. Y. State 382.	A	++++	++	++	++	+	±	±	—
N. Y. State 303.	B	++++	++	++	++	+	±	—	—
N. Y. State 316.	C	++	++	++	+	+	—	—	—
Commercial....	D	+	+	+	±	±	±	—	—
Commercial....	E	+	+	+	±	±	—	—	—
Commercial....	F	++	++	++	+	+	±	—	—

* The suspension consisted of fresh organisms obtained from cultures of the patient's spinal fluid. The tubes were incubated at 56 C. for two hours and then read.

From the Department of Pediatrics, Yale University School of Medicine, and the Pediatric Service of the New Haven Hospital and Dispensary.

1. McKenzie, I., and Martin, W. B. M.: Serum Therapy in Cerebrospinal Meningitis, J. Path. & Bact. **12**: 539, 1908.
2. Fairley, N. H., and Stewart, C. A.: Cerebrospinal Fever, Quarantine Service pub. 9, Commonwealth of Australia, 1916.
3. Kolmer, J. A.; Toyama, I., and Matsunami, T.: Influence of Active Normal Serum (Complement) upon Meningococci, J. Immunol. **3**: 157-199 (May) 1918.

its opsonic and to a lesser extent its bactericidal activity. Dr. Kolmer [4] has informed us of five unreported cases of the successful clinical application of this principle. However, the literature of the last fifteen years has given no serious consideration to this addition in the serotherapy of meningococcus meningitis. Accordingly, it seems worth while to report the following illustrative case:

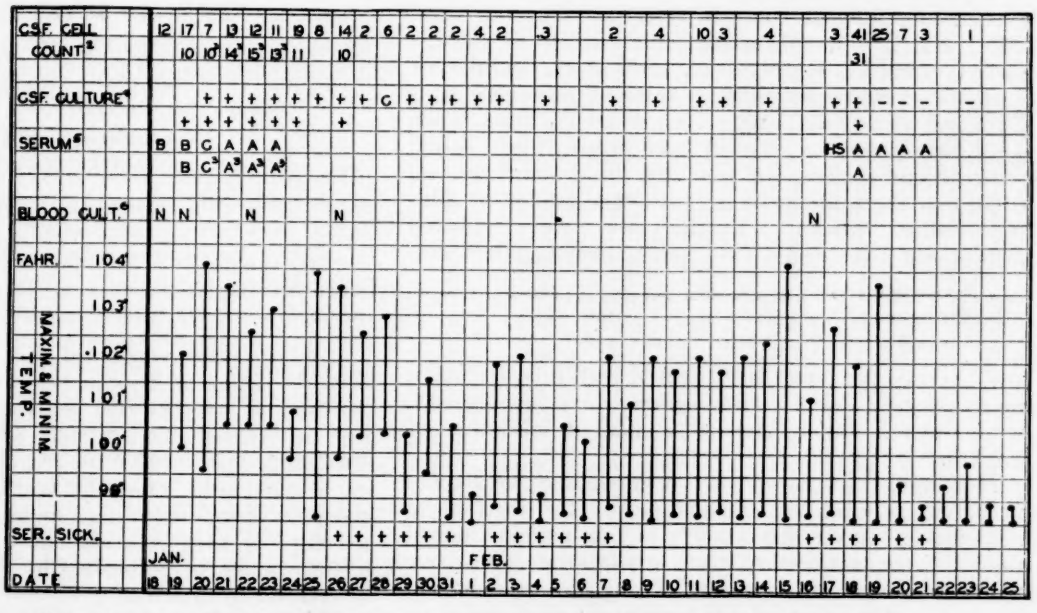
REPORT OF CASE

A white girl, aged 8½ years, admitted to the New Haven Hospital, Jan. 18, 1932, complained of fever, stiff neck, and pain in the left ear. The past history was irrelevant. The present illness was ushered in suddenly on January 14 with a chill, fever and pain in both arms. The next day headache developed; the fever persisted, and toward evening the child became delirious. On the third day the delirium was gone, while the other symptoms remained. On the fourth day there were epigastric pain and vomiting, and on the fifth day the patient was admitted with a temperature of 104 F., pulse 80 and respirations 24 per minute. The child appeared acutely and seriously ill, drowsy but not comatose. There was moderate dehydration. No petechiae could be detected. There was no tenderness of the sinus or mastoid. The tick of a watch was heard 24 inches from either ear. Herpes labialis was noted as well as several small vesicles on the hard palate, on the tongue and on the skin in the nuchal region. The neck was very rigid both to flexion and to rotation. A bilateral Kernig's sign was obtained. The superficial and deep reflexes were normal and equal. There were no other noteworthy physical manifestations. By lumbar puncture 30 cc. of cloudy fluid was removed and 20 cc. of New York state antimeningococcus serum (lot B)[5] was introduced. Gram negative intracellular and extracellular diplococci were seen on direct smear of the spinal fluid, and meningococci, type II (Gordon)[6] were recovered from culture. A record of the subsequent spinal and cisternal taps is given in the accompanying chart, together with serum administrations (showing route and lot used), maximum and minimum daily temperatures, blood cultures and the occurrence of serum sickness. It should be added that only from the first sample of spinal fluid were we able to detect meningococci on direct smear.

Despite the fact that all the symptoms disappeared during the following week and marked clinical improvement was noted, daily spinal taps gave persistently positive cultures. We found it advisable, therefore, to resort to other serums. As is shown in the table, six different samples were tested and the one of highest agglutinating titer (A) was chosen for further use.

Our renewed efforts met with no success; the cultures remained positive and since the child was symptomless (though not afebrile) serotherapy was discontinued, January 24, as indicated in the chart.

This method of management was soon abandoned, however, as the disease began to follow a distinctly unfavorable course. By February 16, the temperature and cerebrospinal fluid cell count had been gradually rising. Kernig's sign was positive, the neck was rigid, the optic disks were blurred and the patient had vomited several times. February 17, 15 cc. of fresh normal human serum was administered intraspinally. February 18, we resumed the use of antiserum (A), after slowly desensitizing the patient. The spinal fluid on February 19 gave no growth after twenty-four hours' incubation. Serotherapy was discontinued, following three successive negative cultures. The thecal fluid remained sterile on all subsequent examinations. It should be recorded that one hour following the first of the renewed injections (antiserum A) there developed swelling of the face, cyanosis of the lips, hoarseness, generalized urticaria and occasional vomiting, all of which were relieved by epinephrine injected subcutaneously. February 23, it was discovered that the patient could not hear the tick of a watch held 1 inch from her left ear. March 3, Kernig's sign was negative; the disks were blurred, and the spinal fluid pressure was 200 mm. of water, the jugular compression causing it to rise to 600 mm. The rest of the patient's course was uneventful. The fundi cleared, the temperature remained normal and the patient was discharged, March 18. The child was examined again two weeks after discharge. Her hearing had completely returned, and she was found to be normal in every respect.



Observations from January 18 to February 25: 2, cerebrospinal fluid cell count given in hundreds of cells; 12 = 1,200 white blood cells per cubic millimeter. 3, cisternal tap and cisternal serum administration. 4, + = meningococci, on culture; —, no growth; *C*, contamination. 5, agglutinating titer of *A*, *B*, *C* is given in the table; when two letters appear, two intrathecal injections were given that day; each injection consisted of 20 cc.; *HS*, human serum. 6, *N* = negative blood culture. Ser. Sick. = serum sickness.

COMMENT

The features that deserve special emphasis in this case are:

1. The long duration of positive spinal fluid cultures (up to the thirty-sixth day), despite the use of an antiserum of good agglutinating titer.

2. The apparent paradox of distinct clinical improvement during a number of days while meningococci were being recovered from the spinal fluid.

3. The use of fresh normal human serum (complement), followed by two injections of antiserum with immediate sterilization of spinal fluid.

It is beyond the scope of this paper to enter into a theoretical discussion on the probable explanation of how a patient with meningococci in the spinal fluid could present a picture of comparative well being. We

4. Kolmer, J. A.: Personal communication to the authors.

5. We are indebted to Dr. Wadsworth of the New York State Board of Health for his kindness in placing the antiserums at our disposal.

6. Typed by Dr. Rake of the Rockefeller Institute, whose cooperation we gratefully acknowledge.

find it compelling to mention, however, that Hadley,[7] in his discussion on microbic dissociation, reviews the work of a number of investigators who have shown that a variety of different organisms, when grown in their homologous antiserums, undergo dissociation and lose their virulence though they retain their capacity to grow abundantly on cultures.

It may be of interest to record here the observations that led us to the use of complement as an activating agent of antimeningococcus serum. Ward and Wright,[8] in studying influenzal meningitis, observed that the spinal fluid of their patients contained no complement. The available anti-influenzal serum showed in vitro practically no bactericidal properties unless guinea-pig or human serum was added. It therefore occurred to them to add complement to the influenzal antiserum for therapeutic use.

In examining our patient's spinal fluid prior to administration of human serum (February 16) we found that the smallest detectable trace of complement was present in 2 cc. That is to say, in a hemolytic system consisting of 1 unit of antigen (sheep red blood cells) and 2 units of amboceptor (sensitized rabbit's serum), complete hemolysis occurred on the addition of 4 cc. of cerebrospinal fluid; a trace of hemolysis with 2 cc. and no hemolysis with 1 cc. or less.[9] Thus, while some complement had already been present in the spinal fluid of our patient, we felt that the amount was so small that there might be an advantage gained by adding human serum. Furthermore, we incubated meningococci recovered from our patient together with

1. Antiserum (A)
2. Antiserum (A) plus fresh human serum
3. Antiserum (A) plus heated human serum

and twenty-four hours later poured each tube on ascitic broth plates. Tubes 1 and 3 gave a luxuriant growth, while tube 2 clearly showed a marked inhibition of growth.

However, from the in vitro results alone, we are not prepared to offer an explanation of the mechanism responsible for the sterilization of our patient's spinal fluid. Certain necessary facts are lacking. We have not determined the amount, if any, of complement present in the spinal fluid during the first series of antiserum injections; nor did we actually establish the fact that twenty-four days after these injections were discontinued (i. e., when the human serum was added) no antiserum remained in the spinal fluid. We merely know that on February 16 there was but a trace of complement present and that after considerable complement (15 cc. of human serum) plus antimeningococcus serum had been added and the spinal fluid sterilized, no free complement could be detected. Finally, aside from these immunologic reactions there remains undetermined what rôle the nonspecific protein reaction of February 18 played in the sterilization of the spinal fluid on February 19.

CONCLUSION

While the results of the thirty-one cases referred to in this paper in footnotes 1, 2 and 4, together with our single case, do not warrant any sweeping conclusions, it seems justifiable to suggest that when a case of meningococcus meningitis is resistant to an antiserum that agglutinates the recovered organism satisfactorily, the addition of fresh normal or convalescent human serum to the antiserum be tried before more radical procedures are instituted.

The exact proportions of the two serums have as yet not been established. In the future, in cases similar to the one described here, we expect to add 5 cc. of fresh human serum to 15 cc. of antimeningococcus serum.

SUMMARY

In a case of meningococcus meningitis, antiserum therapy was followed by clinical improvement but did not sterilize the spinal fluid. After twenty-eight successive positive cultures, fresh normal human serum was administered intraspinally, followed by additional antiserum, with immediate sterilization of the cerebrospinal fluid.

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7. Hadley, Philip: Microbic Dissociation, J. Infect. Dis. **40**: 1-312 (Jan.) 1927.
8. Ward, H. K., and Wright, J.: Problems of Specific Therapy in Influenzal Meningitis, J. Exper. Med. **55**: 223 (Feb.) 1932.
9. Each tube was controlled with heated spinal fluid.

TOXICITY AND PHYSICAL PROPERTIES OF NEOARSPHENAMINE OF DIFFERENT MANUFACTURE

A COMPARATIVE STUDY OF THE TOXICITY AND THE TRYPANOCIDAL AND SPIROCHETICIDAL PROPERTIES, WITH THE ADVISABILITY OF ESTABLISHING STANDARDS OF CURATIVE ACTIVITY

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It is generally recognized that neoarsphenamine prepared by different laboratories is more likely to vary in parasiticidal or curative activity than arsphenamine. For this reason the treatment of syphilis with neoarsphenamine may involve the regrettable error of employing a compound below the average in curative activity and therefore requiring some laboratory check or standard of spirocheticidal activity similar in principle to the standards established by the federal government in relation to toxicity.

This variation in the parasiticidal activity of neoarsphenamine, prepared by different laboratories and indeed observed to some extent in different lots prepared in the same laboratory, has been best detected by means of trypanocidal tests which yield rather sharply defined results capable of eliciting even minor differences in compounds. Unfortunately, however, the results of tests for spirocheticidal activity in the treatment of experimental syphilis of rabbits are less well defined, although still capable of detecting somewhat grosser variations in curative activity.

Since trypanocidal tests employing rats infected with Trypanosoma equiperdum are quickly and cheaply conducted, we have long considered the advisability of employing them as a measure of the curative activity of neoarsphenamine in the treatment of syphilis. Of course a decision on so important a matter depends on whether or not there is a sufficiently accurate relationship between the trypanocidal and spirocheticidal properties of the compound being tested, and the purpose of the present investigation was a further study of the spirocheticidal activity of neoarsphenamine of various manufacture in the treatment of rabbit syphilis in relation to its trypanocidal activity.

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About six years ago we thought that the results of a small series of comparative trypanocidal and spirocheticidal tests with arsphenamine and neoarsphenamine justified the assumption that, in a broad and general manner, lots of neoarsphenamine unusually low in trypanocidal activity were likewise below the average in spirocheticidal activity and that the trypanocidal test offered a fairly reliable and ready method for roughly estimating the curative activity of the trivalent arsenical compounds employed in the treatment of syphilis.[1] At that time, however, exceptions were noted, especially since it was observed that a lot of neoarsphenamine may be unusually high in trypanocidal activity while showing only an average degree of spirocheticidal activity.

During the past two years we have reinvestigated the subject by determining the toxicity and the trypanocidal and spirocheticidal properties of eighteen samples of neoarsphenamine prepared by seven different laboratories, and the results are herein briefly summarized. Some of these compounds were donated by the respective laboratories while others were purchased on the open market, so that we believe the results are acceptable and indicative of the toxicity and parasiticidal properties of neoarsphenamine of different manufacture available at the present time.

METHODS EMPLOYED

The toxicity of each compound was determined by intravenous injection into white rats according to the method established by the National Institute of Health (formerly the Hygienic Laboratory). Each compound was tested in doses varying from 0.150 to 0.350 Gm. per kilogram of weight, according to the official or standard technic, and the tests were repeated when the results were variable and inconclusive. The amounts shown in the accompanying table represent approximately the largest single doses per kilogram of weight tolerated for a period of seven days and are designated as the maximum tolerated doses.

The trypanocidal tests were conducted with white rats infected with T. equiperdum according to the Kolmer method[2] in which treatment was given twenty-four hours after intraperitoneal inoculation. Each compound was employed in a large series of rats in doses varying from 0.001 to 0.012 Gm. per kilogram of weight. The amounts shown in the table are approximately the smallest single doses per kilogram of weight by intravenous injection effecting complete sterilization, as determined by daily examination of the tail blood over a period of three weeks, and designated as the minimal trypanocidal doses.

The spirocheticidal tests were conducted with rabbits inoculated intratesticularly with the Nichols-Hough strain. Treatment was started after the development of acute orchitis, showing numerous actively motile spirochetes by dark field examination. Each compound was tested in doses varying from 0.010 to 0.020 Gm. per kilogram of weight, two rabbits being tested with each dose. In the accompanying table are shown the approximate smallest single doses per kilogram of weight capable not only of dissipating and healing the testicular lesions but likewise of effecting complete sterilization of the inguinal lymph glands as determined by transfer to fresh animals and designated as the minimal spirocheticidal doses.

1. Kolmer, J. A.: Chemotherapy with Special Reference to the Treatment of Syphilis, Philadelphia, W. B. Saunders Company, 1926, p. 323.
2. Kolmer: Chemotherapy with Special Reference to the Treatment of Syphilis, p. 203.

After injection of the compounds, dark field examinations of the testicular lesions for spirochetes were made at frequent intervals to determine approximately the number of days required for the disappearance of the parasites.

Wassermann reactions by the Kolmer method[3] were conducted just before and at weekly intervals after treatment for eleven weeks to determine approximately the time required for single doses to yield negative reactions. This method is so designed as to avoid the nonspecific positive reactions sometimes yielded by normal rabbit serum. All animals yielded strongly positive specific reactions at the height of the acute syphilitic orchitis before treatment was instituted, and in the table are shown the average number of days required by different animals receiving the same dose of the respective compounds for reversal to negative reactions over a period of eleven weeks.

The Toxicity and the Trypanocidal and Spirocheticidal Activity of Eighteen Lots of Neoarsphenamine Prepared by Seven Laboratories: The Curative Effects in Acute Testicular Syphilis of Rabbits

Compound	Maximum Tolerated Dose, Gm. per Kg.	Minimal Trypanocidal Dose, Gm. per Kg.	Minimal Spirocheticidal Dose, Gm. per Kg.	Positive Dark Field Examination, Days	Days Required for Healing of Testicular Lesions	Days Required for Negative Kolmer-Wassermann Reaction
D 1	0.300	0.006	0.020	3–4	6–7	28
D 2	0.300	0.004	0.020	3–4	7–9	About 28
D 3	0.300	0.004	0.020	3–4	6–7	21 to 35
M 1	0.250	0.004	0.020	4–6	7–9	14 to 21
M 2	0.300	0.004	0.020	3–4	7–8	21 to 28
M 3	0.300	0.006	0.020	3–4	7–8	14 to 28
G 1	0.250	0.008	0.020	3–4	6–7	21 to more than 77
G 2	0.300	More than 0.012	0.020	3–4	6–7	28 to 35
G 3	0.300	More than 0.012	More than 0.020	8–10	7–9	28 to 42
S 1	0.200	More than 0.012	More than 0.020	11–15	10–11	28 to 49
S 2	0.250	More than 0.012	0.020	9–11	14	35
S 3	0.250	0.012	0.020	3–5	6–7	42 to 56
C 1	0.200	0.004	0.020	4–5	7–9	21 to 49
C 2	0.200	0.004	0.020	3–4	6–7	21 to 28
C 3	0.250	0.006	More than 0.020	10–15	7–8	35 to 56
B 1	0.250	0.006	0.020	3–4	7–9	21 to 28
B 2	0.200	0.004	0.020	3–4	7–9	28 to 42
P 1	0.200	0.004	More than 0.020	7–11	10–11	49 to more than 77

RESULTS

Toxicity.—The maximum tolerated doses of the eighteen compounds varied from 0.200 to 0.300 Gm. per kilogram of weight, as shown in the accompanying table. With a few of the compounds, doses as high as 0.350 Gm. per kilogram were tolerated for from two to five days, but those shown in the table are the largest amounts tolerated for at least seven days. As the National Institute for Health requires that 60 per cent of rats shall tolerate a dose of at least 0.240 Gm. per kilogram for seven days, it is interesting to note that five of the compounds tested fell below this minimum standard of toxicity.

Trypanocidal Activity.—The minimal trypanocidal doses varied from 0.004 to more than 0.012 Gm. per kilogram of weight. In no instance were doses less than 0.004 Gm. completely trypanocidal, and amounts higher than 0.012 Gm. were not employed.

With the majority of the eighteen compounds tested the minimal trypanocidal doses ranged from 0.004 to 0.006 Gm. per kilogram, which corresponds very closely to the results observed by Schamberg, Kolmer and

3. Kolmer, J. A.: Serum Diagnosis by Complement Fixation, Philadelphia, Lea & Febiger, 1928, p. 415.

Raiziss[4] in 1920, who found at that time that the average minimal trypanocidal dose of neoarsphenamine prepared by six different laboratories, including the German product, was approximately 0.004 Gm. per kilogram of weight. It is interesting to note, however, that the minimal trypanocidal dose of one compound was as high as 0.008 Gm. per kilogram, while four compounds, or approximately 22 per cent, of the eighteen tested were not completely trypanocidal in a dose as high as 0.012 Gm. per kilogram. Two of these compounds were prepared by one laboratory and the other two by a second laboratory. Compounds prepared by the remaining five laboratories showed minimal trypanocidal doses varying from 0.004 to 0.008 Gm. per kilogram, but it would appear that the average minimal trypanocidal dose of neoarsphenamine prepared at the present time is from 0.004 to 0.006 Gm. per kilogram of weight according to the method employed.

Spirocheticidal Activity.—None of the eighteen compounds were completely spirocheticidal in doses of 0.010 and 0.015 Gm. or less per kilogram of weight. Fourteen of them were completely spirocheticidal in the dose of 0.020 Gm. per kilogram, and this would appear to be approximately the average minimal spirocheticidal dose of neoarsphenamine available at the present time. Tests were not conducted with doses between 0.015 and 0.020 Gm. per kilogram; possibly the minimal curative doses of some would have been found somewhat less than 0.020 Gm., but we considered differences of 0.005 Gm. per kilogram sufficiently close for these spirocheticidal tests. It is significant, however, that four, or approximately 22 per cent, of the compounds were not completely spirocheticidal in doses of 0.020 Gm. per kilogram, since the lymph gland transfers to fresh animals yielded positive results.

It is interesting to note that two of these four compounds below the average in spirocheticidal activity were likewise much below the average in trypanocidal activity (S 1 and G 3); G 2 however, while much below the average in trypanocidal activity, showed the average spirocheticidal activity, while just the reverse was observed with P 1, which was highly trypanocidal but below the average in spirocheticidal activity.

As a general rule, dark field examinations of the acute testicular lesions were negative for Spirochaeta pallida in from three to five days after the intravenous injection of 0.020 Gm. per kilogram of weight; this was observed with thirteen, or approximately 72 per cent, of the eighteen compounds examined. With the remaining five, or approximately 28 per cent, at least seven to fifteen days was required. Four of these (G 3, S 1, C 3 and P 1), which were not completely spirocheticidal in a dose of 0.020 Gm. per kilogram, required from seven to fifteen days, while one (G 2), which was completely spirocheticidal in doses of 0.020 Gm. but not trypanocidal in doses of 0.012 Gm., required only the usual period of from three to four days.

As a general rule, the syphilomas were completely healed in from six to eleven days after the injection of 0.020 Gm. per kilogram of weight. Doses of 0.015 Gm. per kilogram caused healing in about the same period of time, and indeed doses as low as 0.010 Gm. per kilogram produced healing in from six to fourteen days. It is apparent, therefore, that the rapidity of disappearance of spirochetes and the rate of healing of the acute testicular lesions are not acceptable as criteria of the curative activity of neoarsphenamine but that lymph gland transfers to the testicles of fresh animals are required for determining the minimal curative doses.

The Wassermann Reaction as an Index of Spirocheticidal Activity.—As previously stated, all the animals showed moderately to very strongly positive Kolmer-Wassermann reactions varying from 31 - - - to 44444 before treatment was given.

None of the eighteen compounds produced negative reactions in doses of 0.010 Gm. per kilogram over a period of eleven weeks, or seventy-seven days.

Nine, or 50 per cent, of them, however, produced negative reactions within this period after a dose of 0.015 Gm. per kilogram. As the tests were not conducted after the eleventh week, we cannot state whether or not any of these would have subsequently yielded positive reactions; but this is quite likely in view of the fact that the lymph gland transfers on all these animals gave positive results, thereby indicating the persistence of infection.

Sixteen, or approximately 90 per cent, of the compounds produced negative reactions within from fourteen to fifty-six days after the intravenous injection of 0.020 Gm. per kilogram of weight. The remaining two lots (G 1 and P 1) produced negative reactions in from twenty-one to forty-nine days in some rabbits receiving this dose, while in others the reactions remained persistently positive up to and including the eleventh week. One of these (G 1) was apparently completely spirocheticidal in doses of 0.020 Gm. per kilogram and indicated either that the lymph gland transfers gave falsely negative results and failed to detect surviving spirochetes or that the complement-fixing reagin persisted in the blood over an unusual period of time. The other (P 1) was not completely spirocheticidal in doses of 0.020 Gm. per kilogram, so that the persistently positive Kolmer-Wassermann reactions were probably due to the persistent infection.

According to these results it would therefore appear that complement-fixing antibody tends to disappear from the blood of rabbits with acute syphilitic orchitis in from two to eight weeks after the intravenous injection of 0.020 Gm. of neoarsphenamine per kilogram of weight but that the reactions may be at least temporarily negative after doses of 0.015 Gm. per kilogram, which are not completely spirocheticidal. Under these conditions it would appear that negative complement-fixation reactions cannot be accepted as criteria of cure in rabbit syphilis unless persistently negative for more than eleven weeks.

RELATIONSHIP OF THE TRYPANOCIDAL TO THE SPIROCHETICIDAL ACTIVITY OF NEOARSPHENAMINE

Examination of the accompanying table shows that with fourteen, or approximately 78 per cent, of the eighteen lots of neoarsphenamine prepared by seven different laboratories, the results of trypanocidal and spirocheticidal tests were in agreement. Twelve of these showed both high trypanocidal (from 0.004 to 0.008 Gm.) and high spirocheticidal activity (0.020 Gm.), while two (S 1 and G 3) showed both low trypanocidal (more than 0.012 Gm.) and low spirocheticidal (more than 0.020 Gm.) activity.

Of the remaining four lots, two (S 2 and G 2) were below the average in trypanocidal but up to the average in spirocheticidal activity, while two (C 3 and P 1) were of the average trypanocidal but below the average in spirocheticidal activity.

4. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: Am. J. M. Sc. **160**: 25 (July) 1920.

Under the circumstances, we believe that the results indicate in a broad and general manner that the trypanocidal activity of neoarsphenamine is a measure of its curative activity in syphilis in the majority of instances. It is true that in approximately 22 per cent of the samples tested this statement was not substantiated by the results, but it is likely that comparative tests with a larger number of compounds may show even a closer relationship and particularly that neoarsphenamine much below the average in trypanocidal activity will be below the average in spirocheticidal or curative activity for syphilis. In this connection, clinical experience with neoarsphenamine is not without significance. For example, during the past year one of us had referred to the clinic a man presenting numerous mucous patches on the tongue and lower lip despite twenty-four injections of neoarsphenamine and thirty-four injections of a bismuth compound. Following the injection of one dose of neoarsphenamine (0.3 Gm.) of other manufacture along with 0.1 Gm. of a bismuth preparation, about 90 per cent of the lesions healed within a week. The fact that this patient had been treated with a brand of neoarsphenamine which gave very poor results in both the trypanocidal and the spirocheticidal test rather points to the value and validity of these tests.

THE NECESSITY FOR AN ACCEPTABLE LABORATORY STANDARD OF CURATIVE ACTIVITY OF NEOARSPHENAMINE

The fact that 22 per cent of the eighteen lots of neoarsphenamine examined in this investigation were found to be below the average in spirocheticidal or curative activity in rabbit syphilis is not without important practical significance and warrants the assumption that some laboratory check on curative activity is advisable. In this series there was one lot from each of four different laboratories falling below the average; with the remaining three laboratories the lots tested came within the range of average spirocheticidal activity.

Since trypanocidal tests are quickly and cheaply conducted, we believe that they are worthy of further trial in this connection and that in a broad and general manner it will be found that in the majority of instances neoarsphenamine much below the average in trypanocidal activity will be also found below the average in curative activity for syphilis.

Certainly it is well known that the curative activity of neoarsphenamine is subject to greater variation than is that of arsphenamine, and since it is the most widely employed arsenical compound in the treatment of syphilis it would appear advisable to have some kind of occasional check on its curative activity as a safeguard against the regrettable error of treating syphilis with compounds below the average in spirocheticidal or curative activity. Sometimes this may be suspected or demonstrated by a failure of the lesions of syphilis in human beings to heal under neoarsphenamine treatment, as previously referred to; but it would appear that some kind of laboratory test would be required for quicker and more reliable information.

Spirocheticidal tests require more work and time but yet are probably worth while, and we believe that the National Institute of Health would do well to consider the advisability of requiring the manufacturers of neoarsphenamine to test at least a fair percentage of their output for trypanocidal activity, with an occasional check on their spirocheticidal activity. For example, it may be required that neoarsphenamine shall prove completely trypanocidal in a certain standard dose and curative in acute syphilis of the rabbit, including sterilization of the lymph glands in a dose of 0.020 Gm. per kilogram. Several rabbits could be treated with this single dose and the costs thereby reduced. It is true that about four months is required for the final results of the spirocheticidal tests and that it may not be fair to hold up lots for this period of time before their release for the treatment of human syphilis; but it would at least serve as an occasional check on the output of each laboratory licensed to dispense neoarsphenamine and do something worth while in reducing the chances of the regrettable error of approving neoarsphenamine below the standard in curative activity for the treatment of syphilis on the basis of toxicity tests and physical properties alone, as is now the custom.

Furthermore, while it is true that rabbits may be cured of syphilitic infection with amounts of neoarsphenamine much less than required for human beings according to body weight, it would appear that compounds below the average in curative activity for syphilitic rabbits is also below the average in curative activity for syphilitic human beings; at least we do not know of any evidence to the contrary of this statement. While it would appear that trypanocidal activity is not as reliable an index, since Trypanosoma equiperdum infection of rats is so different from Spirochaeta pallida infections of rabbits, the results indicate that the great majority of compounds of high average trypanocidal activity are of average spirocheticidal or curative activity in syphilis and that the determination of trypanocidal activity may be a sufficiently reliable routine test with the determination of spirocheticidal activity on a smaller percentage of output as an occasional check, because of a closer relationship to the treatment of human syphilis. But if spirocheticidal tests are accepted, it is apparent that the criterion of cure must rest on the results of lymph gland transfers from treated rabbits to fresh animals, since the rate of healing and disappearance of spirochetes from the testicular lesions and the rate of disappearance of positive blood Wassermann reactions are not acceptable criteria.

SUMMARY

1. Since neoarsphenamine is known to vary in antisyphilitic properties, it is highly desirable to have some reliable and practical laboratory test of curative activity in addition to the present standards controlling toxicity and physical properties.

2. The maximum tolerated dose for white rats of eighteen different lots of neoarsphenamine prepared by seven different laboratories varied from 0.200 to 0.300 Gm. per kilogram of weight. Five, or approximately 28 per cent, had a maximum tolerated dose of about 0.200 Gm. per kilogram and were therefore below the minimum of 0.240 Gm. per kilogram required by the National Institute of Health.

3. The average minimal trypanocidal dose of the eighteen lots was from 0.004 to 0.008 Gm. per kilogram of weight by the Kolmer method. Thirteen, or approximately 72 per cent, of the lots tested were completely and five, or approximately 28 per cent, incompletely trypanocidal in these amounts.

4. The average minimal spirocheticidal dose for rabbits with acute syphilitic orchitis, including sterilization of the inguinal lymphatic glands, was about 0.020 Gm. per kilogram. Fourteen, or approximately 77 per cent, of the eighteen compounds tested were completely spirocheticidal in this dose, while six, or about 23 per cent, were not.

5. The rate of healing of the testicular lesions and the disappearance of spirochetes were not acceptable criteria of the curative properties of neoarsphenamine. Lymph gland transfers from treated animals to fresh rabbits are required as criteria of cure.

6. Wassermann tests of the blood with the serums of treated animals are probably not acceptable criteria of cure unless conducted over periods longer than three months.

7. According to this investigation, it would appear that the results of trypanocidal tests checked with the results of spirocheticidal tests with approximately 78 per cent of the eighteen lots of neoarsphenamine tested.

8. By establishing a standard of minimal trypanocidal activity, we believe that it will be possible to detect quickly and cheaply lots of neoarsphenamine too far below the average in curative activity to warrant their use in the treatment of syphilis.

9. By establishing 0.020 Gm. of neoarsphenamine per kilogram of weight as the minimal curative dose in acute syphilis of rabbits, it would appear practical and advisable to require laboratories engaged in the manufacture of neoarsphenamine to produce compounds possessing not only a minimum standard of trypanocidal activity but also this minimum of spirocheticidal activity.

10. We suggest and urge the National Institute of Health to establish standards of these kinds similar to the official standards of toxicity and physical properties of neoarsphenamine already in force for many years, with praiseworthy results, to lessen the chances of incurring the regrettable error of treating syphilis with neoarsphenamine below the average in curative activity.

2101 Pine Street.

Clinical Notes, Suggestions and New Instruments

A SIMPLE METHOD FOR WRITING A SCIENTIFIC DIET

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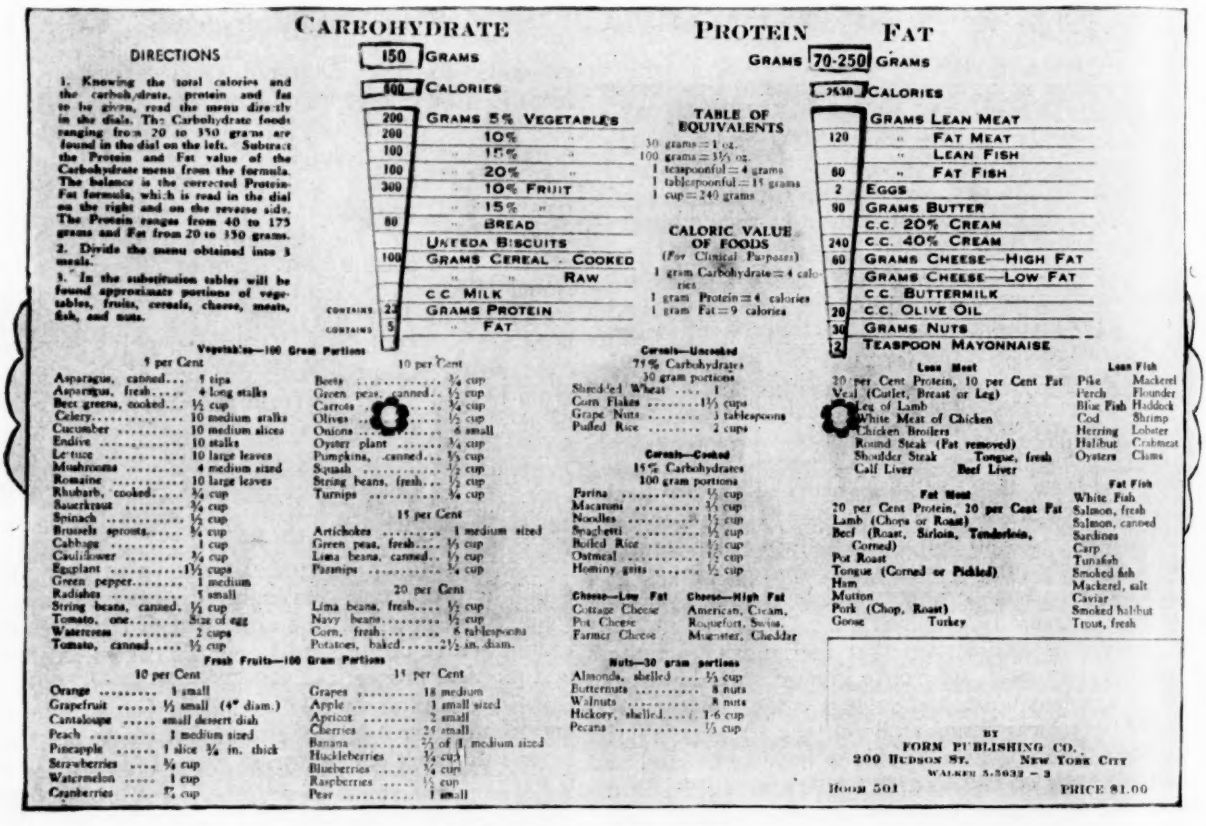
Among the major medical diseases in which the physician finds it necessary to prescribe a diet for a patient are included diabetes, obesity, cardiorenal disease, nephrosis and epilepsy. The progressive physiologic advances in the knowledge of nutrition have taught the clinician to respect the significant importance of the carbohydrate, protein, fat, salt and vitamin contents of foods when prescribing diets for patients. The present method of applying this useful information to the patient consists of resorting to diets recommended for these diseases by standard textbooks on nutrition and dietetics. One usually finds on investigating these books that the choice of diets is relatively limited. In diabetes, for example, one has little choice of selection from more than four to six inflexible diets. Again, in seeking a diet for nephritis, a list of protein-containing foods is given and the physician is advised to restrict or totally eliminate them. The physician is not given an opportunity from these references to prescribe a diet for the individual requirements of the patient under consideration. Thus, if he wishes to give a diabetic patient a diet containing the proportions of food ingredients that he thinks are indicated for his patient and is different from the standard diets advised, he finds a great deal of difficulty in making the adjustment. For example, a doctor may wish to give a patient a diet containing carbohydrate 175 Gm., protein 60 Gm., fat 90 Gm., 1,780 calories; it will require considerable searching to find the menu that will meet the requirements of this formula. Or when he may wish to give a nephritic patient a diet containing 40 Gm. of protein and 2,500 calories he will find it necessary to seek the aid of a trained dietitian. The reason for this is that most medical schools do not include a course that trains the student in a thorough knowledge of food values and the quantitative



Front face of diet calculator.

character of their chemical ingredients. It seems to have been relegated to the domain of the dietitian as a relatively unimportant branch of therapeutic information. The result is that the physician who wishes to apply the fruitful products of metabolic research to his medical practice is left with a gap which he finds difficult to span. When he finally decides to give an obese patient a diet of 900 calories containing 125 Gm. of protein, his next question is "What shall I tell the patient?"

I have devised a simple chart with two dials which has solved this problem. It makes it possible to translate practically any diet formula into a menu. It contains 1,800 possible varieties of menus, any one of which can be read in less than half a minute, the total of which will meet with the contingencies of any diet requirement in medicine. A turn of the dials, and the twenty-four hour menu is read for any formula.

The front face of the chart contains two windows through which the figures on the dials are read, the left window for carbohydrate foods and the right window for protein-fat combinations. In the upper left hand corner are directions for using the chart, and the entire lower portion of the chart is devoted to substitution tables listing 100 gram portions of vegetables, fruits, cereals, cheese, nuts, meat and fish classified according to their carbohydrate, protein and fat values. For example, to prescribe a diet for an obese patient of 1,000 calories containing carbohydrate 90 Gm., protein 120 Gm. and fat 20 Gm., the left dial is turned until 90 appears in the carbohydrate window and the right dial until 120-20 appears in the protein-fat window. All the foods appearing in both windows make a menu which complies with the requirements of the foregoing formula. Thus one reads: 200 Gm. of 5 per cent vegetables, 300 Gm. of 10 per cent fruit, 40 Gm. of bread, two Uneeda biscuits, 180 Gm. of lean meat, 180 Gm. of lean fish, 120 Gm. of low fat cheese, 720 cc. of buttermilk. The lower portion of the chart contains lists of foods included under 5 per cent vegtables, 10 per cent fruit, lean meat and fat-free cheese, with approximate sizes of portions. This list is then divided into three meals and given to the patient. The menu could then appear in some such fashion:

Breakfast.—100 Gm. of 10 per cent fruit; 60 Gm. of low fat cheese; one Uneeda biscuit; one glass of buttermilk; tea or coffee without cream or sugar.

Lunch.—100 Gm. of 5 per cent vegetables; 20 Gm. of bread; 180 Gm. of lean meat; 100 Gm. of 10 per cent fruit; one glass of buttermilk.

Dinner.—Clear broth; 100 Gm. of 5 per cent vegetables; 180 Gm. of lean fish; 20 Gm. of bread; 100 Gm. of 10 per cent fruit; tea.

Evening.—One Uneeda biscuit; one glass of buttermilk; 60 Gm. of low fat cheese.

The reverse side of the chart contains directions for obtaining the formula for the diets in diabetes, obesity, cardiorenal disease, nephrosis and epilepsy. There will also be found a large number of sample diets that I recommend.

9 Prospect Park West.

THERAPEUTIC INJECTIONS OF PROCAINE HYDROCHLORIDE IN UROLOGIC COMPLICATIONS

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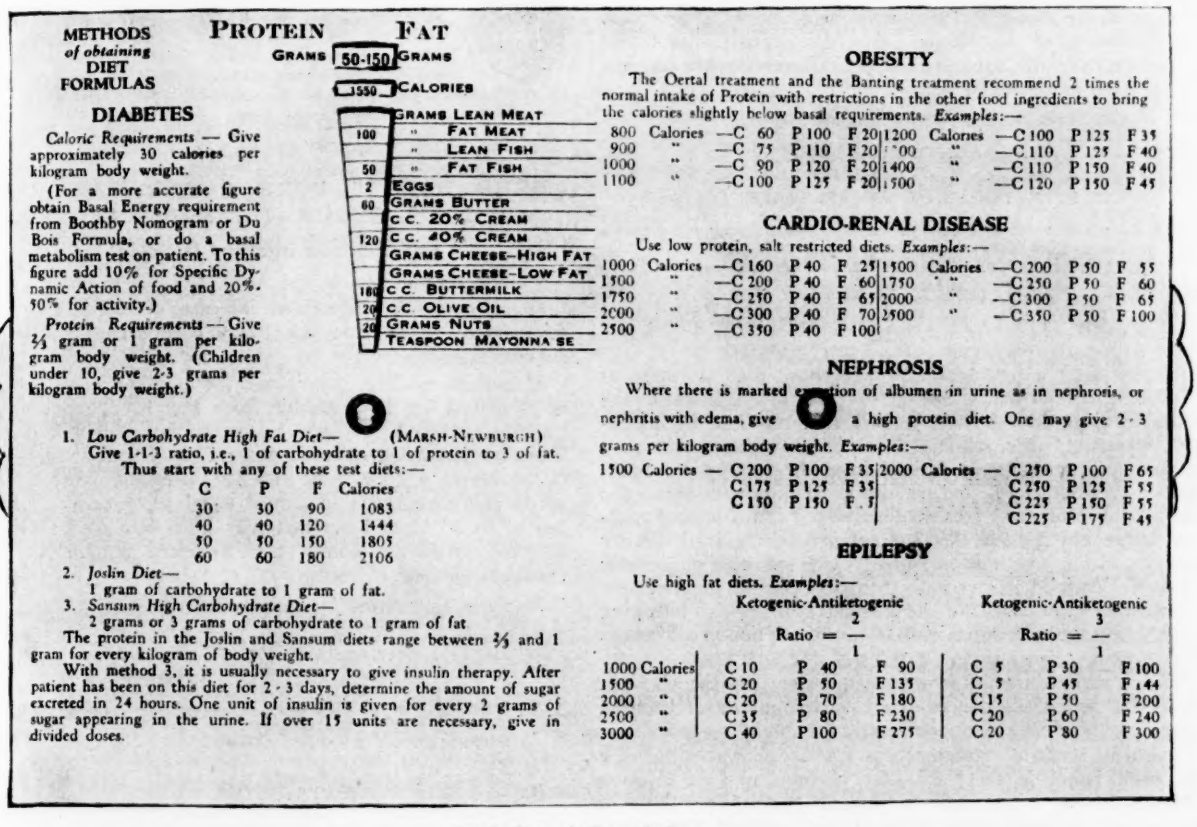
The prompt assuaging of pain caused by urologic complications of gonorrheal or nongonorrheal origin is an active problem. It most frequently presents itself in acute epididymitis, prostatitis and gonorrheal arthritis. While it is true that in the majority of instances the current therapeutic efforts, such as epididymotomy, protein therapy, diathermy, aspiration and immobilization of the affected joint, will succeed in furnishing eventual relief, there still persists a more or less extended period of severe pain until the final therapeutic effect materializes. Injections of procaine hydrochloride round the afflicted areas furnish prompt cessation of pain, which relief is of a satisfactory duration.

Areas of reflected pain (Head's zones) remote from the inflammatory focus may also be the seat of severe annoyance and will also become silent by the administration of this local anesthetic. It is known that renal and ureteral colics and perinephric pains are promptly relieved by paravertebral injections of procaine.

Recently Halban reported that encircling injections of procaine were successfully employed in painful dermal zones produced by the viscerocutaneous reflex originating in acute and


METHODS of obtaining DIET FORMULAS
PROTEIN
FAT
GRAMS
50-150
GRAMS
1550
CALORIES
DIABETES
Caloric Requirements — Give approximately 30 calories per kilogram body weight.
(For a more accurate figure obtain Basal Energy requirement from Boothby Nomogram or Du Bois Formula, or do a basal metabolism test on patient. To this figure add 10% for Specific Dynamic Action of food and 20%-50% for activity.)
Protein Requirements — Give ⅔ gram or 1 gram per kilogram body weight. (Children under 10, give 2-3 grams per kilogram body weight.)
100 GRAMS LEAN MEAT
" FAT MEAT
" LEAN FISH
50 " FAT FISH
2 EGGS
60 GRAMS BUTTER
C C. 20% CREAM
120 C C. 40% CREAM
GRAMS CHEESE-HIGH FAT
GRAMS CHEESE-LOW FAT
180 C C. BUTTERMILK
20 C C. OLIVE OIL
20 GRAMS NUTS
TEASPOON MAYONNAISE
1. Low Carbohydrate High Fat Diet— (MARSH-NEWBURGH)
Give 1-1-3 ratio, i.e., 1 of carbohydrate to 1 of protein to 3 of fat.
Thus start with any of these test diets:—
C P F Calories
30 30 90 1083
40 40 120 1444
50 50 150 1805
60 60 180 2106
2. Joslin Diet—
1 gram of carbohydrate to 1 gram of fat.
3. Sansum High Carbohydrate Diet—
2 grams or 3 grams of carbohydrate to 1 gram of fat.
The protein in the Joslin and Sansum diets range between ⅔ and 1 gram for every kilogram of body weight.
With method 3, it is usually necessary to give insulin therapy. After patient has been on this diet for 2-3 days, determine the amount of sugar excreted in 24 hours. One unit of insulin is given for every 2 grams of sugar appearing in the urine. If over 15 units are necessary, give in divided doses.
OBESITY
The Oertal treatment and the Banting treatment recommend 2 times the normal intake of Protein with restrictions in the other food ingredients to bring the calories slightly below basal requirements. Examples:—
800 Calories —C 60 P 100 F 20 | 1200 Calories —C 100 P 125 F 35
900 " —C 75 P 110 F 20 | 1300 " —C 110 P 125 F 40
1000 " —C 90 P 120 F 20 | 1400 " —C 110 P 150 F 40
1100 " —C 100 P 125 F 20 | 1500 " —C 120 P 150 F 45
CARDIO-RENAL DISEASE
Use low protein, salt restricted diets. Examples:—
1000 Calories —C 160 P 40 F 25 | 1500 Calories —C 200 P 50 F 55
1500 " —C 200 P 40 F 60 | 1750 " —C 250 P 50 F 60
1750 " —C 250 P 40 F 65 | 2000 " —C 300 P 50 F 65
2000 " —C 300 P 40 F 70 | 2500 " —C 350 P 50 F 100
2500 " —C 350 P 40 F 100
NEPHROSIS
Where there is marked excretion of albumen in urine as in nephrosis, or nephritis with edema, give a high protein diet. One may give 2-3 grams per kilogram body weight. Examples:—
1500 Calories — C 200 P 100 F 35 | 2000 Calories — C 250 P 100 F 65
C 175 P 125 F 35 | C 250 P 125 F 55
C 150 P 150 F 35 | C 225 P 150 F 55
C 225 P 175 F 45
EPILEPSY
Use high fat diets. Examples:—
Ketogenic-Antiketogenic Ratio = 2/1 | Ketogenic-Antiketogenic Ratio = 3/1
1000 Calories C 10 P 40 F 90 | C 5 P 30 F 100
1500 " C 20 P 50 F 135 | C 5 P 45 F 144
2000 " C 20 P 70 F 180 | C 15 P 50 F 200
2500 " C 35 P 80 F 230 | C 20 P 60 F 240
3000 " C 40 P 100 F 275 | C 20 P 80 F 300

Back face of diet calculator.

chronic inflammations of the uterine adnexa. He states that they not only act as a temporary anodyne but also produce lasting therapeutic effects.

While the administration of paravertebral anesthesia calls for the services of an experienced technician, encircling injections of procaine are simple.

The principal point is not to make the injections into the inflamed organs but into the surrounding area. A 1 per cent aqueous solution is used for the injection. A quantity sufficient for flooding the adjacent tissues is injected.

It is known from the experiences gained in operative infiltration anesthesia that up to 40 cc. of such a solution may be used with impunity.

In instances of epididymitis it is advantageous to locate by palpation the area within which the scrotal integument is adherent to the epididymis and then to flood the surrounding zone by moving the needle in various directions. In prostatitis the periprostatic tissue is injected by inserting a long needle through the perineum, the position of the needle being controlled by a finger inserted into the rectum. Painful funiculitis is treated in the same way by encircling injections alongside the chord. Arthritic joints are immediately made painless by the same method. The needle point is pushed in up to the fascia but not into the capsule or the joint. In twenty-seven patients treated in this way during the last year, the results were satisfactory and no untoward incidents were observed. The promptness of the analgesia and the advantage of tiding the patient over the intermediate period warrant the recommendation of this method.

108 North State Street.

STREPTOCOCCUS SCARLATINAE

VOLUME OF A FORTY-EIGHT HOUR BROTH CULTURE REQUIRED TO YIELD SUFFICIENT NUCLEOPROTEIN TO PRODUCE SKIN AND CONSTITUTIONAL REACTIONS IN SUSCEPTIBLE INDIVIDUALS

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NEW YORK

Observations [1] are available which show that as little as from 0.0001 to 0.001 mg. of nitrogen of Streptococcus scarlatinae is capable of producing characteristic skin reactions in susceptible patients. Other studies [2] have indicated that equivalent quantities of nucleoprotein derived from the hemolytic streptococcus may induce fever and malaise in patients with rheumatic fever. Some workers [3] hold that untoward constitutional reactions sometimes follow the intravenous injection of similar quantities of nucleoprotein in patients with subacute glomerular nephritis. Derick [4] has recently reported clinical improvement in patients with subacute hemorrhagic nephritis following repeated intravenous injections of a hemolytic streptococcus nucleoprotein.

This communication is presented in order that the clinician may better appreciate the relatively small number of bacteria required to produce these reactions.

A virulent strain of Streptococcus scarlatinae was grown for forty-eight hours in forty 1.5 liter portions of beef infusion broth containing 1 per cent of peptone and 0.1 per cent of dextrose. The broth was buffered with sodium phosphate. Bacterial counts on a mixed sample from fifteen of the forty flasks showed 420,000,000 organisms per cubic centimeter. The total number of bacteria in the 60 liters was, therefore, 25,200,000,000,000.

The total yield of nucleoprotein from the dried bacteria in this lot was calculated to be 5.0 Gm. The nitrogen content of the nucleoprotein was therefore approximately 0.8 Gm. This amount was equivalent to 800,000 average skin test doses, since 0.001 mg. of nitrogen equals one skin test dose. Division of the total number of bacteria in the 60 liters (25,200,000,000,000) by the number of skin test doses of nitrogen (800,000) shows that in this experiment 31,500,000 organisms are required to produce one skin test dose of nucleoprotein. This number of organisms is equivalent to 0.075 cc. of the forty-eight hour culture.

Since these calculations are only approximate, it may be said that the nucleoprotein in a drop of the culture is sufficient to elicit the characteristic skin reaction.

It appears from these data that a relatively small volume of bacteria is necessary to produce the amount of nucleoprotein that has been found harmful to some individuals. In such diseases as rheumatic fever and subacute glomerular nephritis, in which the progressive pathologic condition prevails after the disappearance of obvious infection, it is thus apparent that minute foci of hemolytic streptococcus infection in the throat, sinuses, lymph glands or other similar areas may contain sufficient organisms to produce the harmful dose of nucleoprotein.

From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

1. Ando, K.; Karauchi, K., and Nishimura, H.: J. Immunol. **18**: 223 (March) 1930. Coburn, A. F.: The Factor of Infection in the Rheumatic State, Baltimore, Williams & Wilkins Company, 1931; bibliography.
2. Swift, H. F.; Hitchcock, C. H., and Derick, C. L.: Proc. Soc. Exper. Biol. & Med. **25**: 312, 1928.
3. Seegal, David, and Lyttle, J. D.: Unpublished studies.
4. Derick, C. L.: Tr. A. Am. Physicians, 1932.

Committee on Foods

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

BRER RABBIT PURE SUGAR CANE AND CORN SYRUP (BROWN LABEL)

(Contains Sulphur Dioxide)

Manufacturer.—Penick and Ford, Ltd., New Orleans.

Description.—A pasteurized mixture of sugar cane syrup (evaporated sugar cane juice) and corn syrup; treated with sulphur dioxide.

Manufacture.—The sugar cane syrup ingredient is prepared as described for Brer Rabbit Pure Sugar Cane Syrup (Blue Label), described in THE JOURNAL, Jan. 7, 1933, page 43. The corn syrup ingredient is prepared as described on page 817 of the March 5, 1932, issue of THE JOURNAL. The sugar cane syrup and corn syrup in almost equal proportions are mixed, heated to 80 C. and automatically filled into cans. The cans are not artificially cooled and therefore remain hot for a considerable time.

Analysis (submitted by manufacturer).—

	per cent
Moisture	26.2
Ash	1.3
Fat	0.0
Protein (N × 6.25)	0.2
Reducing sugars as invert	23.4
Reducing sugars after inversion (as invert)	54.1
Sucrose (copper reduction method)	29.2
Dextrins (by calculation)	18.2
Carbohydrates (by difference)	72.3
Iron (Fe)	0.0005
Calcium (Ca)	0.05
Sulphur dioxide (mg. per kilogram)	11

Calories.—2.9 per gram; 82 per ounce.

Claims of Manufacturer.—This syrup is for all table, cooking and baking uses.

HECHT'S SALT RISING BREAD

Manufacturer.—Hecht's Bakery, Bristol, Tenn.

Description.—"Salt rising bread" raised by a special non-yeast ferment containing organisms producing hydrogen and carbon dioxide; prepared by the sponge dough method.

Manufacture.—This salt rising bread is fermented with a special ferment containing wheat flour, corn meal, corn flour, sodium bicarbonate, sodium chloride, calcium carbonate, calcium phosphate, potassium persulphate, potassium bromate, potassium iodate, potassium periodate, calcium sulphate and certain organisms and spores of organisms developed from corn meal, which produce hydrogen and carbon dioxide to leaven the bread dough.

The dough ferment for the bread dough is prepared by adding boiling water to a mixture of powdered skim milk and the special ferment. The mixture is stirred, covered and kept in a warm place (32-38 C.) for nine hours, or until frothy. The sponge dough is made by mixing the prepared ferment with flour and water (38-49 C.). The sponge is allowed to stand for one and one-half to three hours, at which time water (66 C.), sugar, shortening, dried skim milk and salt are added and mixed. More flour is mixed in to make a smooth dough, which is divided into pieces of desired weight, molded, panned, proofed and baked.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.5
Ash	1.2
Fat	2.0
Protein (N × 6.25)	9.4
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	50.5

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—This bread is prepared by a dough fermentation due to other organisms than yeast. The flavor is different from that of the usual white bread.

PRUDENCE READY TO BROWN CORNED BEEF HASH

Manufacturer.—Boston Food Products Company, Boston.

Description.—Canned corned beef hash; cooked corned beef and potatoes; seasoned with salt and pepper.

Manufacture.—Fresh steer meat, United States inspected and passed by the Department of Agriculture, is cut to the proper sizes; skin, gristle and sinews are removed. It is placed in a light brine in a refrigerator for curing for eight days. The cured meat is cooked, and chopped in a chopping machine; chopped potatoes (prepared from pared, eyed, ripe potatoes), water, salt and pepper are added; the mixture is automatically canned and thoroughly cooked.

Analysis (submitted by manufacturer).—

	per cent
Moisture	70.5
Total solids	29.5
Ash	2.1
Fat (ether extract)	1.7
Protein (N × 6.25)	10.0
Reducing sugars before inversion as dextrose	0.5
Starch (acid hydrolysis method)	6.8
Sucrose (copper reduction method)	0.1
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	15.2

Calories.—1.2 per gram; 34 per ounce.

Claims of Manufacturer.—The product is for all table uses of corned beef hash.

WHITE RIBBON FLOUR (PHOSPHATE ADDED)

Bleached and "Matured"

Manufacturer.—The Scott County Milling Company, Sikeston, Mo.

Description.—A blended "standard patent" flour milled from soft and hard red winter wheats, bleached and matured.

Manufacture.—Selected soft red winter and hard red winter wheats are cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended, bleached with a mixture of benzoyl peroxide and calcium phosphate (1/10 ounce per 196 pounds) and matured with a mixture of chlorine and nitrosyl chloride (1¼ ounces per 196 pounds).

Analysis (submitted by manufacturer).—

	per cent
Moisture	13.8
Ash	0.7
Fat (ether extraction method)	1.1
Protein (N × 5.7)	9.0
Crude fiber	0.2
Reducing sugars as dextrose	0.1
Sucrose (copper reduction method)	0.7
Total carbohydrates other than crude fiber (by difference)	75.2

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—The flour is designed for biscuit baking.

BRER RABBIT PURE NEW ORLEANS MOLASSES (GREEN LABEL)

(Contains Sulphur Dioxide)

Manufacturer.—Penick and Ford, Ltd., New Orleans.

Description.—Pasteurized New Orleans molasses taken from the second crystallization liquor in the preparation of cane sugar; treated with sulphur dioxide.

Manufacture.—The cane syrup described for Brer Rabbit Pure Sugar Cane Syrup (THE JOURNAL, Jan. 7, 1933, p. 43) is concentrated by boiling. The sugar is partially crystallized out. The mass of crystals is removed by centrifugation. The liquid portion separated from the crystals is further evaporated and cane sugar again crystallized out; the second crop of sugar crystals is removed by centrifugation. The liquid obtained from this second crystallization is termed "second A molasses." It is held in a cold warehouse until the time of packing, when it is heated to 80 C. and automatically filled in tins, which are not cooled and therefore remain hot for a considerable time.

Analysis (submitted by manufacturer).—

	per cent
Moisture	23.0
Ash	6.0
Fat	0.0
Protein (N × 6.25)	0.9
Reducing sugars as invert	17.3
Reducing sugars after inversion (as invert)	63.0
Sucrose (copper reduction method)	43.4
Carbohydrates (by difference)	70.1
Iron (Fe)	0.006
Calcium (Ca)	0.27
Sulphur dioxide (mg. per kilogram)	53

Calories.—2.8 per gram; 80 per ounce.

Claims of Manufacturer.—This molasses is for all table, cooking and baking uses.

1. SUNRISE BRAND TOMATO JUICE
2. ADVO TOMATO JUICE
3. GOOD MORNING TOMATO JUICE
4. HERALD BRAND TOMATO JUICE
5. KAMO BRAND TOMATO JUICE
6. DAISEE BRAND TOMATO JUICE
7. KRASDALE BRAND TOMATO JUICE
8. FLEETWOOD TOMATO JUICE
9. APPROVAL TOMATO JUICE
10. NEW STATE BRAND TOMATO JUICE
11. PICKWICK BRAND TOMATO JUICE
12. 18-K BRAND TOMATO JUICE
13. THE RIDER BRAND TOMATO JUICE
14. LESLIE BRAND TOMATO JUICE
15. GOODYEAR BRAND TOMATO JUICE

Packer.—Vincennes Packing Corporation, Vincennes, Ind.

Distributors.—1. Miner, Read & Tullock, New Haven, Conn.
2. McCord Brady & Co., Omaha.
3. Good Morning Co-Operators, Terre Haute, Ind.
4. Mazo Lerch Company, Washington, D. C.
5. Paxton and Gallagher Company, Omaha.
6. The Herrman Company, Paterson, N. J.
7. A. Krasne, New York.
8. King, Dobbs & Co., Chattanooga, Tenn.
9. M. E. Horton, Inc., Washington, D. C.
10. The Williamson-Halsell-Frasier Company, Oklahoma City.
11. Kansas City Wholesale Grocery Company, Kansas City.
12. Winston and Newell Company, Minneapolis.
13. The Nicholas Reiter Company, Baltimore.
14. Cressey Dockham & Co., Inc., Salem, Mass.
15. Mazo-Lerch Company, Washington, D. C.

Description.—Pasteurized tomato juice with added salt; retains in high degree the vitamin content of the raw juice; the same as Alice of Old Vincennes Tomato Juice (THE JOURNAL, Feb. 20, 1932, p. 640).

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SATURDAY, JANUARY 21, 1933

THE RHEUMATIC STATE

Despite unceasing investigations at the bedside and in the laboratory, rheumatic fever has remained one of the great enigmas of medical science. More and more it has become apparent that the manifestations of the disease affecting the joints may be entirely absent or play a relatively insignificant part in the clinical ensemble. The gradual recognition of the fact that the gravest effects are usually on the heart has greatly influenced the clinical management. The appreciation of the extent of cardiac damage and the direction of the treatment toward this feature is probably largely responsible for the decline in the death rate from heart disease during the past two decades among children under 15 years of age. While the death rate from all forms of heart disease has steadily increased during the last twenty years, the death rate from heart disease in children under 15 has declined 25 per cent.

One of the most interesting observations in the natural history of the rheumatic state is the occurrence of explosive outbreaks. The striking seasonal variation is emphasized by all observers. In America and continental Europe the greatest incidence of the disease occurs in late winter and spring, usually reaching its peak in April. Many students have described outbreaks, often reaching epidemic proportions, in urban populations, in certain families, in congested military camps, in convalescent hospitals and in other institutions. The fact that the disease is much more prevalent among poverty-stricken persons in temperate and subtropical climates, particularly in the colder, damper areas, has produced many theories as to the possible etiologic significance of such sociological, climatological and meteorological influences.

Coburn and Pauli [1] have recently published the results of extensive studies of the relationship of Streptococcus hemolyticus to the rheumatic process. These observers found that while the clinical and epidemiologic data of outbreaks of rheumatic fever have been carefully collected, bacteriologic studies of these waves of the disease have been strikingly lacking. Studies conducted by workers in England [2] have confirmed the observations of Coburn and Pauli that Streptococcus hemolyticus is quite constantly associated with the development of the rheumatic state. The rarity and mildness of the disease in certain tropical countries and its relative severity in the north temperate zone appear to be related to the influence of climate on infections of the respiratory tract associated with rheumatic disease. The influence of climate on scarlet fever, a streptococcic disease, is well demonstrated by the almost complete absence of this disease in the tropical island of Puerto Rico. That susceptibility to scarlet fever exists in Puerto Ricans is indicated by the fact that scarlet fever frequently develops in these persons after they arrive in the north temperate zone.

In order to measure the influence of climate on the flora of the upper respiratory tract, contemporaneous studies were conducted in New York and in Puerto Rico by Coburn and Otero during 1929 and 1930. The results demonstrated that the bacterial life in the constantly hot tropics and the pharyngeal flora of urban inhabitants of Puerto Rico are almost constant from month to month. Streptococcus hemolyticus appeared in the normal throat rarely and only in small numbers. Similar observations have been made by Milam and Smillie [3] in inhabitants of the Virgin Islands. In contrast to these observations, Coburn has found that the spring outbursts of rheumatic fever in New York have been preceded each year by a striking increase in the incidence of Streptococcus hemolyticus in the bacterial flora of the throat. Coburn regards the seasonal incidence of Streptococcus hemolyticus and the occurrence of rheumatic fever as a definitely correlated relationship. He has found also that poverty and unhygienic living conditions favor both the activity of Streptococcus hemolyticus throat infections and the incidence of rheumatic fever. Collis,[2] in England, has also observed that the organism associated with recrudescences of rheumatic fever is Streptococcus hemolyticus; infections of the upper respiratory tract termed colds and associated with the pneumococcus produced no recrudescence of rheumatic fever.

As a result of repeated studies of the flora of the throat in rheumatic subjects during recrudescences and remissions, it has been found that the recurrence of symptoms of the disease is almost invariably associated with Streptococcus hemolyticus pharyngitis from one to three weeks prior to the recrudescence of rheumatic fever. By studying rheumatic patients before, during

1. Coburn, A. F., and Pauli, Ruth H.: Studies on the Relationship of Streptococcus Hemolyticus to the Rheumatic Process: I. Observations on the Ecology of Hemolytic Streptococcus in Relation to the Epidemiology of Rheumatic Fever; II. Observations on the Biological Character of Streptococcus Hemolyticus Associated with Rheumatic Disease; III. Observations on the Immunological Responses of Rheumatic Subjects to Hemolytic Streptococcus, J. Exper. Med. **56**: 609-676, 1932. Coburn, A. F.: The Factor of Infection in the Rheumatic State, Baltimore, Williams & Wilkins Company, 1931.

2. Glover, J. A., and Griffith, Frederick: Brit. M. J. **2**: 521 (Sept. 19) 1931. Collis, W. R. F.: Lancet **1**: 1341 (June 20) 1931.

3. Milam, D. F., and Smillie, W. G.: J. Exper. Med. **53**: 733 (May) 1931.

and after transplantation from New York to the tropical environment of Puerto Rico, it was demonstrated that Streptococcus hemolyticus could not be recovered from the pharyngeal flora during residence in the tropics and the disease process remained quiescent. On the return of these individuals to New York, those who escaped infection of the upper respiratory tract remained free of rheumatic symptoms, while those who had Streptococcus hemolyticus pharyngitis had a rheumatic attack within three weeks after the throat infection. Extensive bacteriologic studies of ambulatory rheumatic subjects over a period of four years have demonstrated that those who escape respiratory disease remain free of rheumatic manifestations.

An investigation of the biologic character of the hemolytic streptococci recovered from the pharyngeal cultures suggests that rheumatic fever, like scarlet fever and erysipelas, is associated with a number of different serologic types. The collected observations on the relation of the activity of the rheumatic process to Streptococcus hemolyticus, and the failure to detect a single serologic type of organism associated only with rheumatic fever, have led Coburn to conclude that the specificity of the rheumatic response, like the reaction in certain other streptococcus diseases, does not depend entirely on the character of the organism but is probably also related to some individual mechanism of the rheumatic subject. The hemolytic streptococci recovered from the pharyngeal flora of those stigmatized with the rheumatic state were found to fall into six antigenic groups. The majority of the freshly isolated strains were strong toxin producers. The organisms producing the strongest toxin were present in cultures from the throats of patients who had intense rheumatic symptoms. About 70 per cent of these toxins were neutralized by a monovalent streptococcic antiserum.

As the result of a study of agglutination reactions, complement fixation reactions, precipitin reactions and the development of antistreptolysin, Coburn demonstrated the development of bodies immune to Streptococcus hemolyticus during the course of rheumatic fever. The constant finding of a high titer of antistreptolysin in the serum of patients with acute rheumatic fever provides evidence that the rheumatic attack is initiated by Streptococcus hemolyticus. It is found that there is a close relationship between the time of appearance of this antibody in the serum and the manifestations of activity of the rheumatic process.

This important undertaking provides strong evidence that the infectious agent initiating the rheumatic state is Streptococcus hemolyticus. If these observations can be confirmed by other investigators, the development of specific methods of prevention and treatment should be the next goal. The fact that effective antiserums have been developed for the apparently closely related diseases scarlet fever and erysipelas should stimulate vigorous inquiry in this field.

MOTTLED ENAMEL

In 1901, Dr. J. M. Eager [1] of the U. S. Public Health Service, then stationed at Naples, reported a peculiar condition of the enamel of the teeth among Italian emigrants, particularly those coming from Pozzuoli, a community about five miles from Naples. This dental defect was called "denti di Chiaie," after Prof. Stefano Chiaie, who first described the condition. From Eager's description it is recognized as being similar to the enamel defect found in various places in the United States and in other countries and now known as "mottled enamel." The latter designation was first applied by Black [2] as a descriptive name for the condition. According to his report, the essential injury is the appearance of the teeth, which are of normal form but not of normal color. When not stained brown or yellow they are a ghastly, opaque white, which comes prominently into notice whenever the lips are opened. In many cases the teeth appear absolutely black. Mottled enamel is distinguished especially by the absence of cementing substance between the enamel rods in the outer fourth, more or less, of the enamel, and a great variety of color is presented. The outer glazed enamel surface, or Nasmyth's membrane, is present and appears to be normal except in what have been termed the "corroded" cases. The associated pigmented or stained phase of mottled enamel is called "brown stain." This brown stain does not occur in all cases of mottled enamel, and it seems to be limited to the labial surfaces of the upper incisors and cuspids.

Observations on children have indicated that enamel of the temporary teeth that are formed before birth and are dependent on prenatal nutrition almost never show the defect under consideration. As the permanent teeth do not begin to form until after birth, the mottled condition in them is apparently not related to maternal nutrition. When the occurrence of mottled enamel in teeth became better recognized, it was apparent that the defect often had an endemic character. Such an endemic area has been described [3] for the town of Bauxite, Ark., which was established in 1901 to provide homes and a social environment for the employees of a mining company. The original supply of water for domestic purposes came from shallow surface wells and a few springs. A larger supply was required as the population increased and in 1909 a well with a depth of 255 feet was drilled and later two other wells were drilled close by. Water from these wells was piped into the houses. Dental examinations of the children in the town school disclosed no cases of the enamel defect that antedated the introduction of the deep well

1. Eager, J. M.: Denti di Chiaie, Pub. Health Rep. **16**: 2576 (Nov. 1) 1901.
2. Black, G. V. (in collaboration with McKay, F. S.): A Brief Synopsis of a Paper entitled "Mottled Teeth, an Endemic Developmental Imperfection of the Enamel of the Teeth, Heretofore Unknown in the Literature of Dentistry," Proc. Panama-Pacific Dental Congress **1**: 25, 1915; Mottled Teeth—An Endemic Developmental Imperfection of the Teeth, Heretofore Unknown in the Literature of Dentistry, Dental Cosmos **58**: 129 (Feb.) 1916.
3. Kempf, G. A., and McKay, F. S.: Mottled Enamel in a Segregated Population, Pub. Health Rep. **45**: 2923 (Nov. 28) 1930.

water. The oldest child found with the enamel defect was born about the time the deep well water was introduced. All children in the community who had used the deep well water during any considerable period of enamel formation exhibited this defect. No person in the community whose enamel had developed elsewhere exhibited the defect. Some who, although residents of the community and attending school there actually lived beyond the distribution of the deep well water and depended on the original shallow wells, exhibited only normal enamel. In all, 458 children from 5 to 18 years of age were examined in the schools of Bauxite. Mottled enamel of some teeth was found in 202 cases, or 44 per cent. In evaluating this percentage the investigators recall again the immunity of temporary teeth and also consider the imported individuals, by which is meant those persons who had grown the enamel on such permanent teeth as were erupted at the time of the examination elsewhere, before becoming residents of Bauxite. If some local condition at Bauxite was responsible for the defect, such enamel would of course be normal.

This is a remarkable story. It has been supplemented by later investigations in the same area. A news item from Arizona published a few months ago [4] indicated that at least forty-five communities where mottled enamel of the teeth is endemic have been revealed as the result of investigations carried on in the past year throughout the state. About 110 public and fifty-five private water supplies have been analyzed. Communities with a population large enough to warrant investigation were visited, and the occurrence or absence of mottled enamel was recorded. Examination was made of the permanent teeth of school children, and the water supply was sampled at the time of the examination. The majority of the communities in which mottled enamel was found lie along two rivers, the Gila and the San Pedro. Dietary studies failed to indicate any deficiency that could account for the dental conditions. However, analysis of the water from St. David and other communities in which the condition was endemic showed abnormal amounts of fluorine. When residue left after evaporation of the water was included in the ration of rats, a condition similar to mottled enamel, if not identical with it, was produced.

The occurrence of mottled teeth in Polk County, Iowa, has recently been reported.[5] It seems likely that the defects began after the sinking of deep wells in this region and that the condition did not occur while shallow well water was used. This is substantiated by the fact that the cases so far noted have occurred in children born at approximately the time when the deep wells were installed. Here, too, the chemical evidence so far secured tends to incriminate fluorine compounds. This does not apply to the stains, which were at one time attributed to manganese. When the cause of mottling is definitely determined by the studies now in progress in several laboratories,[6] it will doubtless become possible to avert the danger. It is interesting to note that Pozzuoli is reported to have changed its water supply and to be free from the defects noted. For the present there are no incriminations of surface waters or shallow wells such as form the drinking water supply of most American communities.

4. Fluorine Content of Drinking Water, J. A. M. A. **99:** 481 (Aug. 6) 1932.

5. Ostrem, C. T.; Nelson, V. E.; Greenwood, D. A., and Wilhelm, H. A.: The Occurrence of Mottled Teeth in Iowa, Science **76:** 575 (Dec. 16) 1932.

6. Smith and Smith: Tech. Bull. 43, Arizona Agric. Exper. Sta., 1932.

PELLAGRA AND DIET

Adequate appreciation of the extent of the prevalence and the real significance of pellagra in the United States was not awakened until the present century. The epidemic incidence of the disease in certain parts of the country was pointed out by Searcy [1] in 1907. Pellagra had probably occurred sporadically many years before this but had escaped proper recognition. There are indications that during the Civil War outbreaks of the malady appeared in army camps and prisons. At any rate, within the past generation pellagra has obtruded itself into prominence in this country in the consideration of the public health problems of the Southern states.

There are few students of the subject who will venture the conclusion that the question of the etiology of pellagra is solved. The older zeistic theory attributing the malady to an intoxication from spoiled maize has proved to be quite untenable. Today the preponderance of opinion favors the conclusion that pellagra is to be classed among the so-called dietary deficiency diseases. There is no complete accord regarding the food factor responsible for protection against the appearance of pellagra, although many clinicians accept the views of the late Dr. Joseph Goldberger and his associates of the U. S. Public Health Service implicating a vitamin. Perhaps the difficulty in reaching complete accord is due to the possibility that pellagra is in many instances a syndrome presenting the composite result of several different deficiencies. A few champions of an infectious origin of pellagra are still occasionally heard. McLester [2] mentions the modified belief that the specific infection, if there is an inciting microbiotic agent, attacks only persons who, because of general malnutrition or of some more specific form of nutritional failure, are especially predisposed. In any event there is assurance that an abundant, mixed diet is in most instances a prophylactic and a cure. Sandels and Grady [3] have pointed out, after some experience in pellagrous districts, that the importance of diet in the prevention and treatment of pellagra is generally

1. Searcy, G. H.: An Epidemic of Acute Pellagra, J. A. M. A. **49:** 37 (July 6) 1907.

2. McLester, J. S.: Nutrition and Diet in Health and Disease, Philadelphia, W. B. Saunders Company, 1931.

3. Sandels, Margaret R., and Grady, Eunice: Dietary Practices in Relation to the Incidence of Pellagra: I. A Study of Family Dietaries in Leon County, Florida, Arch. Int. Med. **50:** 362 (Sept.) 1932.

accepted. It is not yet clear, however, whether a specific dietary deficiency is involved or whether the deficiency is of a more general nature, important primarily in lowering the body's resistance to disease. Medical opinion in the South is still divided, though the weight of evidence at present available supports the conception of a specific deficiency.

Dietary surveys have been conducted in several regions or institutions where the incidence of pellagra has been high. On this basis Goldberger, Wheeler and Sydenstricker [4] suggested a few years ago that the seasonal appearance of pellagra may be correlated with variations in the food supply, if it is assumed that the winter season with its restricted diet serves as a long period of depletion. A recent dietary study in Leon County, Fla., by Sandels and Grady [3] of the Florida State College for Women in Tallahassee, is enlightening. Careful comparisons were made of the diet of pellagrous and nonpellagrous families at four seasons of the year; namely, midwinter, spring, late summer and fall. Records of recurrences of pellagra in the families studied show that the eruption appeared most frequently in March and April, before the increased food supply of the spring was available. Comparison of the records of the pellagrous and the control groups shows significant differences in the use of milk and succulent vegetables, particularly in the fall and winter diets, with some indications of a difference in the use of eggs, cheese and fruit. The use of lean meat and fish is similar in the two groups. These investigators interpret their results as a confirmation of the earlier observations of an inverse relationship between the use of milk and the incidence of pellagra, and an extension of these observations in showing the existence of a seasonal variation in the milk supply of the families studied, which is sufficiently greater in the pellagrous diets to constitute a significant difference between the dietary practices of the two groups. In these Florida records the use of milk for each adult male unit daily in the pellagrous and nonpellagrous families amounted to 6.8 and 15.8 ounces, respectively, in the winter, and 3.3 and 14.6 ounces in the fall. Only in the late summer did they approximate equality (15 and 17 ounces). These facts support the dictum of Wheeler [5] that in cases of borderline nutrition, in which a slight unfavorable change in diet may put the family into the malnourished class, the milk supply may be the controlling factor in the appearance or nonappearance of the disease. In this connection physicians may be interested in the growing number of sporadic cases [6] of pellagra, or pellagra-like symptoms, arising regardless of geographic locality as the result of voluntary or enforced severe dietary restriction. Many of these are associated with some dysfunction of the alimentary tract.

4. Goldberger, Joseph; Wheeler, G. A.; Sydenstricker, E. J., and King, W. I.: A Study of Endemic Pellagra in Some Cotton Mill Villages of South Carolina, Bull. 153, Hyg. Lab., U. S. P. H. S., January, 1929.

5. Wheeler, G. A.: Pellagra in Relation to Milk Supply in Households, Pub. Health Rep. **39**: 2197 (Aug. 29) 1924.

6. Carley, P. S.: A Case of Pellagra Following Voluntary Restriction of Diet, J. A. M. A. **91**: 879 (Sept. 22) 1928. Eusterman, G. B., and O'Leary, P. A.: Pellagra Secondary to Benign and Carcinomatous Lesions and Dysfunction of the Gastro-Intestinal Tract: Report of Thirteen Cases, Arch. Int. Med. **47**: 633 (April) 1931. Crutchfield, E. D.: Pellagra with Special Reference to the Skin and Mucous Membrane, Arch. Dermat. & Syph. **17**: 650 (May) 1928.

Current Comment

OROYA FEVER

At last, apparently, investigators are beginning to penetrate the mystery that has surrounded Oroya fever for more than forty years and that has taxed the ingenuity of numerous workers since Daniel A. Carrion in 1885 sacrificed his life to prove the identity of verruca peruana and Oroya fever. In 1909 Barton discovered in the red cells of Oroya fever patients small, rodlike, definitely motile organisms, which subsequently were called Bartonella bacilliformis and which he considered the pathogenic agent of the disease. Barton and several other investigators observed the frequency of associated secondary infections, particularly with the paratyphoid B bacillus, to which Barton, in 1912, frankly attributed the high mortality of the disease. Monge insisted, however, that death was due to the extreme virulence of the verruca virus itself and that the paratyphoid B infection was just a terminal manifestation and not the cause of the gravity of the disease. Ramón E. Ribeyro [1] now presents a series of thirty-six cases of Oroya fever, nineteen of which he himself attended. Of seventeen cases uncomplicated with paratyphoid B, sixteen were cured, including cases presenting malaria, dysentery, bronchopneumonia and typhus; one patient died from exanthematous typhus. Of nineteen cases complicated with paratyphoid B, one was cured and eighteen proved fatal. All these patients had an extreme degree of anemia, the erythrocyte count ranging between 620,000 and 2,700,000, but the majority averaging about 1,500,000. Among his nineteen personal cases there were thirteen uncomplicated with paratyphoid B, of which twelve were cured, one patient dying of typhus; these thirteen cases belonged to the laboring class living under conditions that undoubtedly exposed them to previous immunizing attacks of typhoid and paratyphoid. His remaining six cases were complicated with paratyphoid B and proved fatal; all the patients belonged to the better class and the probabilities are that their mode of living had protected them against previous infection with typhoid or paratyphoid. Ribeyro concludes from his experience that any case of Oroya fever complicated by paratyphoid B is most likely to be fatal. Until recently, authors have stated the prognosis of Oroya fever as extremely serious because none have made an attempt to separate the disease from its complications. Some have based their statements on the inadequate investigations of workers in the field whose conclusions they thought acceptable. Now it is evident that Oroya fever offers a favorable prognosis regardless of the extent of the destruction of the red blood corpuscles, and it is not even necessarily fatal when complicated by malaria,

1. Ribeyro, R. E.: Verruca Peruana and Paratyphoid B, Reforma méd. **18**: 252 (Oct.) 1932.

dysentery, bronchopneumonia and exanthematous typhus. As demonstrated by Ribeyro's series of cases, the prognosis of plain Oroya fever is favorable; it is reserved in the complicated form but fatal when the complication is due to paratyphoid B bacillus. A self evident corollary of these conclusions is the necessity of vaccinating against paratyphoid B all who are compelled to reside in or to travel through the infected districts.

Medical Economics

NEW FORMS OF MEDICAL PRACTICE

11. Hospital Insurance Schemes

PLANS IN THE UNITED STATES

(Concluded from page 123)

The National Hospitalization System, Inc., is another nation-wide company engaged in the promotion of group hospitalization plans. It has recently entered into a contract with St. Paul's Hospital, Dallas, Texas, which has not continued for sufficient time to permit of any report as to results. This contract, however, supersedes a previously existing plan of a similar character on the operation of which the hospital has reported the facts summarized in the accompanying table.

Résumé of Members of Dallas Methodist Hospital, Hospitalization Given Members, and Monies Paid Hospital from February, 1931, to Oct. 1, 1932

1.	Members in good standing 10/1/32 (2,510 men—2,279 women)	4,789
2.	Total members entered hospital during 1931 up to 10/1/32 (179 men—261 women)	458
3.	Total number of days in hospital (1,778 men—2,527 women)	4,305
4.	Average number of days in hospital (men)	9
5.	Average number of days in hospital (women)	9.68
6.	Average charge by hospital per day	$ 5.92
7.	Average receipts by hospital per day	6.78
8.	Total charge by hospital	25,493.79
9.	Total paid hospital (basis, $0.50 month)	29,209.10
10.	Net surplus to hospital	3,815.31

The plan installed by the National Hospitalization System, Inc., collects $9 a year, for which St. Paul's Hospital agrees to give twenty-one days' hospitalization annually, in a $5 private or $4.50 semiprivate room, with 33⅓ per cent reduction on further care. It does not include any medical or surgical fees, makes the customary exceptions of tuberculosis, chronic, contagious, mental and venereal diseases, and the contract also contains the usual provision that in case of epidemic or public disaster the hospital may discharge its obligation by refunding twice the amount paid by the insured during the previous twelve months. Special emphasis is placed in the advertising on the fact that a member losing his position is permitted to retain his insurance and continue to pay dues, and that free choice of doctor is permitted among the members of the Dallas Medical Society.

One leaflet distributed states on its cover that "St. Paul's Hospital now offers Complete (Group Plan) Hospitalization Service for only 2½ cents per Day." The reading matter explains the limit of twenty-one days but says nothing of excluded diseases or of the reservation in case of epidemics. The radio is also used as a method of advertising, but no report of the nature of such talks has been received.

A number of hospitals in and around Newark, N. J., have formed the "Associated Hospitals of Essex County Inc." to install and operate a plan of joint hospitalization. The fees are fixed at $10 a year or 85 cents monthly and the provisions of the contract are almost identical with others already described except for a fifteen day waiting period after the first payment.

It is also provided that: "Service will be rendered only upon authorization and request by the subscriber's personal physician, who must be a member of a County Medical Society in New Jersey and/or acceptable to the hospital selected by the subscriber. During the period of hospitalization the subscriber must be under the treatment and care of such physician in accordance with his staff privileges at the hospital selected by the subscriber."

The "Associated Hospitals of Essex County, Inc." is an association not for pecuniary profit, with wide powers, not only as to the management of the plan, but also to "aid and assist in the development of a health program for the communities served by such hospital plan."

The Hospital Conference of the City of New York is considering a plan to embrace all the hospitals of that city. Some of the proposed provisions are as follows:

> Each individual of the group would contribute eighty-five cents a month or ten dollars a year through a pay roll deduction or as might be otherwise arranged. The employer would collect the payments and turn them over to a common hospital fund, from which the hospitals furnishing the service would be reimbursed. On its part each participating hospital would furnish these individuals, whenever necessary, with a maximum of twenty-one days of care in semi-private accommodations. The care would include board, nursing, use of operating room, laboratory tests, X-rays, anaesthetics, drugs, and dressings, attention of hospital medical staff and other hospital facilities, exclusive of physicians' or surgeons' fees. Inasmuch as the average hospital stay is less than two weeks, the three week period of free care has proved adequate. The only hospital cases not benefiting under the plan are chronic diseases, mental troubles, tuberculosis and contagious diseases, such as smallpox, which cannot be accepted in general hospitals. This service does not apply to patients eligible to treatment under the Workmen's Compensation Act, but does apply to accidents and other illness. By giving the patient semi-private care, the physician or surgeon can keep his personal contact and arrange his own terms for payment with his patient.

There are many minor variations of all these plans. The Touro Infirmary of New Orleans extends the privilege of a 33⅓ per cent discount, not only, as is customary in many such plans, to all hospital services beyond those provided in the contract, but also to dependents of those insured. The rate is $10 a year, and the hospital deals only with employed groups.

Among the provisions of the plan are: "Free choice of physicians. Personal relation preserved between patient and physician. Does not include doctors' fees."

The plan of the Hahnemann Hospital in Philadelphia has much the same provisions. Payment by employed persons of $10 a year insures thirty days' hospitalization yearly in a semi-private ward. In the beginning, a scheme was included for payment of physicians on a fixed fee schedule in return for an annual contribution of $15; but, owing to the opposition of the physicians to what they considered a form of contract practice, this was abandoned. The present plan has been sharply criticized by local physicians on the ground that a patient who had received thirty days' complete hospitalization in return for a payment of $10 would conclude that any fee charged for medical or surgical services much above that amount would meet with objection as excessive and be difficult of collection.

The plans installed by promoters are all much on the same pattern as to the rates and the provisions of hospitalization, although some recent schemes are showing a tendency to reduce contributions, which must result in deterioration of services or exploitation of the hospitals. The amount of commission charged for installing and operating the plan in the schemes studied varies from 21 to 80 per cent. In some cases there is a system of "reserves" that would seem to offer opportunity for the diversion of considerable additional sums into the pockets of the promoters.

CRITICISM

The principal merits of such plans are the following:

1. Limitation of these schemes to hospital care with restrictions as to length and character of services furnished and diseases covered makes possible more accurate actuarial calculations than are applicable to general sickness service. Confining the scope to employed groups insures certain standards of health and income and reduces sales and collection expense.

2. Such schemes seem to afford, temporarily, at least, regular financial support to the hospital; it is claimed that they will tend to reduce fluctuations in the use of services and to distribute the burden of cost among a large number, thereby reducing the load on individuals.

3. If hospital standards are maintained, a fairly high grade of care is assured.

4. It provides payment of the costs of hospitalization for many patients who might otherwise be objects of charity and a burden on the resources of the hospitals.

Some of its present and prospective defects are that:

1. To a large extent such schemes are being installed as a result of a "tactics of desperation," in which hard pressed hospitals are seeking "any port in a storm." This is a situation in which hasty action is apt to create institutions and vested rights and relations whose future effects may be far different from present expectations. Such plans need careful consideration based on investigation and comparison of experiments now under way. Examination of some of those already in existence and others in process of adoption gives ample evidence of the lack of such investigation and preparation.

2. The adoption of such a plan by a single hospital or a group of hospitals, in a locality, creates a division within the hospital field and the medical profession, and a feeling that such a plan, by creating an artificial monopoly through salesmanship and compulsion by employers is able to exert "unfair competition" on those hospitals outside the scheme. This situation encourages the formation of rival groups and such undesirable forms of commercial competition as solicitation, underbidding and consequent deterioration of service. It also destroys freedom of choice of physicians and hospitals for as large a section of the population as are induced to become contributors.

3. All such plans tend to lessen the control of county medical societies over medical practice and thus to decrease the effectiveness of the most important form of professional control of standards and ethics, while at the same time it increases the influence of lay commercial interests.

4. Such plans tend to extend hospital care beyond its natural scope. Patients who would ordinarily be cared for by a family physician at home will insist on going to the hospital where they feel they have already paid for care. Baylor University Hospital found that teachers used their hospital privileges during vacation for rest and the treatment of ailments neglected during the teaching term. This is an indication of a tendency that has disrupted actuarial calculations in many European systems of health insurance. When any form of service is paid for in advance there is a desire to secure the benefits. Consequently, not only have morbidity rates steadily increased under all such systems, but great pressure is brought on physicians to certify to sickness so that the cash benefits may be obtained. It is at least probable that a similar pressure will be exerted by contributors to hospital insurance on attending physicians to secure hospital certification. Should this tendency develop, it would invalidate the calculations, none too accurate at present, on which schemes of hospital insurance are based, and also tend to create some of the conflicts between patient and physician that have had such evil results in systems of general health insurance. Where there is a choice of hospital, if the rates paid are such as to leave a surplus, the hospital may be inclined to encourage such overhospitalization as a source of income.

5. These plans make the hospital a "preferred creditor" over the physicians and surgeons. Unless the contract and the salesmen make it emphatically clear that the services of the physician require additional payment, many patients will be led to believe that their contributions cover all expense during hospitalization. Experience has shown that hired salesmen soliciting contributions from firms and individuals may not only neglect to point out any such restrictions but may seek to give the impression that *all* medical care is covered by the contributions.

6. The employment of salesmen, especially on commission, which is a feature of many plans, introduces all the elements of commercial competition, including some that are considered "unfair" even in business. Such plans depend on securing contracts for future sales from a large section of the market for medical services and then using the monopoly so secured to fix the terms of such service. When this monopoly is further buttressed by group and employment compulsion, denying to the individual for some time in the future the right to select the form and source of his medical service, conditions are created closely analogous to those that have already been condemned in business by the Federal Trade Commission and the courts. Such a comparatively mild method of insuring future patronage as is offered by "trading stamps" has been forbidden by law in many states.

7. There are a number of legal questions that do not seem to have been sufficiently investigated and have not yet been passed on by the courts. Can a hospital chartered "not for profit" enter into a scheme which, as do some of those offered by promoters, promises considerable profits? Do these schemes constitute insurance? If so, will they come under the various laws and regulatory bodies set up for control of insurance? The legal provisions of the different states vary widely on this point and certainly should be examined by any hospital proposing to enter into such a scheme. The exact legal obligations incurred by the hospital through the contract with the contributor lack clear definition and interpretation. In view of the relation to insurance and to the prohibition of some closely analogous forms of "unfair competition," the exact responsibilities assumed under such a contract are far from clear. Such arrangements make the physician certifying to the need of hospitalization a part of the contract and create relations in some ways different from those existing when such a contract does not exist.

8. The moment the sphere of commercial competition is permitted to invade the organization, direction and marketing of medical services, and especially if these functions are placed in profit-seeking commercial hands, the whole history of medical practice has shown that deterioration in ethics and service inevitably follows. Rival schemes fight for survival by lowering payments for professional services, by more flamboyant advertising and exaggerated promises and by giving inferior service.

9. Every new social arrangement tends to become a nucleus of much wider developments and to establish institutions, customs and vested interests having an influence far beyond the immediate intentions of the founders. This will almost certainly be true of hospital insurance. The first tendency, already developed in several schemes, is to extend the scope of the scheme from hospitalization to general medical care. The advantages and disadvantages of such general plans have already been discussed here, but there are some especially undesirable features about the extension of a scheme planned for hospitalization, often managed by profit-seeking promoters and with no control by organized medicine. If general medical care for low-paid workers is to be placed on an insurance basis, it certainly should not be introduced incidentally through plans organized for other purposes and in ways hostile to the best considered opinions of the organized medical profession.

10. The broad effect of all such plans is to shift the burden of hospital support from philanthropy and good will to assessment of low-paid workers. One of the selling points made by promoters of such plans is that the surplus received from contributions may be used to meet the expense of indigent care. It is also urged that many previously free bed wards may be changed to income-producing space. Is it entirely ethical for an institution to utilize philanthropic gifts to build such beds and then use them for producing income? This question may be purely academic at the present moment, but will it remain so in the future?

11. Even with all the safeguards of the British system, most of which are absent from American schemes, the question of control of hospital management by lay organizers of contributory schemes is becoming troublesome. Does any one believe that, once a promoting organization, perhaps of nation-wide scope, has through a system of contracts gained control of a large share of the market for hospital service, it will hesitate to use that power to control hospital management?

12. Confining the scope of the service to employed wage-workers leaves a large section of the population most in need of hospital care without protection, a feature that in other countries has led to a demand for all-inclusive, compulsory governmental action. Is the pattern being created by the present hospital schemes one that could be followed by such an extension without the introduction of great harm to the medical profession and the public?

13. Restricting of the scope to the employed means that a worker who contributes to such a scheme for years becomes ineligible for its benefits the moment he loses a job. If that loss is due to failing health, he loses his protection just when most needed.

14. Reference has already been made to the dangers of misrepresentation when salesmen are employed. Practically all these plans issue some sort of advertising, usually in the form of circulars or pamphlets for general distribution. Such material invariably exaggerates the scope of the protection

offered. In many cases the divergence between such advertising and the terms of the contract is greater than the Federal Trade Commission permits in business advertising.

15. If payments are made direct to the hospital or if the funds are held in open bank account by the commercial organization promoting the scheme, there is, in some plans, no security that the scheme is sufficiently sound financially, or the funds so safeguarded that in case of failure the insured who had contributed for future care might not be left without recourse. This is especially true when a scheme is conducted either by a hospital or separate agency without proper safeguards being set up to insure the safety of the funds.

Association News

THE MILWAUKEE SESSION

The Scientific Exhibit

The Committee on Scientific Exhibit announces that those persons intending to read papers before various sections of the Scientific Assembly at the Milwaukee Session and who also wish to show the material illustrating those papers in the Scientific Exhibit should make application for space in the Scientific Exhibit before February 13, at which date applications close. Application blanks may be obtained from the Director, Scientific Exhibit, 535 North Dearborn Street, Chicago.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 9:45 to 9:50 a. m. (central standard time) over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

January 23. Colds.
January 25. Don't Run This Risk.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

January 28. Burning the Candle at Both Ends.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Society News.—Dr. Guy L. Hunner, Baltimore, addressed the Jefferson County Medical Society, Dec. 16, 1932, on "Calculus of the Upper Urinary Tract with Special Consideration of Recurring Stones."——At the December meeting of the Jackson County Medical Society, Dr. Willard H. Steele, Chattanooga, among others, spoke on "Nonsurgical Management of Sinusitis."——Dr. John O. Rush, Mobile, addressed the Baldwin County Medical Society at Fairhope, Nov. 3, 1932, on "Cystoscopic Treatment of Vomiting of Pregnancy."

ARKANSAS

Society News.—Dr. Russell A. Hennessey, Memphis, addressed the Pulaski County Medical Society, Nov. 28, 1932, on "Prostatic Resection."——Speakers before the Arkansas County Medical Society at its meeting in Stuttgart, Nov. 22, 1932, were Drs. William T. Pride, Memphis, on analgesia in obstetrics; Grayson E. Tarkington, Hot Springs, "Early Treatment of Syphilis," and James S. Speed, Memphis, "Fractures of the Elbow."

Personal.—Dr. Walter M. Matthews, Jr., has been appointed chief medical officer for the Little Rock regional office of the Veterans' Administration, newspapers reported, Dec. 4, 1932, to succeed the late Dr. Robert B. Corney. Dr. Matthews, who has been a resident of Little Rock since 1921, became connected with the administration in 1922 and has been chief of the tuberculosis unit at the hospital since 1926.——Dr. and Mrs. Thomas B. Blakely, Coal Hill, celebrated their golden wedding anniversary, Nov. 19, 1932.

CALIFORNIA

Changes in Health Officers.—Dr. Richard Heinz has been appointed health officer of Pleasanton, succeeding the late Dr. James Hallam Cope. Dr. Charles S. Mitchell succeeds Dr. Lewis L. Seligman as health officer of Dinuba. Dr. Etta S. Lund, Willows, has been appointed health officer of Glenn County to succeed Dr. Frank M. Lawson, Willows, and Dr. Theodore Snypp, Auburn, health officer of Placer County, succeeding Dr. David M. Kindopp, Colfax. The public health work of San Joaquin, Fresno County, is now under the supervision of the Fresno County Health Department, of which Dr. James E. Pendergrass, Clovis, is health officer.

Popular Medical Lectures.—Stanford University School of Medicine began its fifty-first course of illustrated popular medical lectures at Lane Hall, San Francisco, January 6, when Dr. Arthur W. Meyer, Palo Alto, spoke on "Ancient Man and Ape." In the second lecture, January 20, Dr. Ray Lyman Wilbur, Washington, D. C., discussed the work of the Committee on the Costs of Medical Care. Subsequent lectures will be given by the following physicians:

Walter H. Brown, Palo Alto, Results of a Study of Nursing Care of Middle Classes, February 3.
Herman M. Adler, Berkeley, Psychiatry of Crime, February 17.
Howard C. Naffziger, Brain Surgery, Its Beginning, Development and Present-Day Application, March 3.
Alonzo E. Taylor, Stanford University, Danger of Subnutrition During Business Depression, March 17.

Bill Introduced.—A. 18, to amend the chiropractic initiative act, proposes (1) that the secretary of the chiropractic examining board be paid an annual salary of $4,500; (2) that the board have authority to employ an attorney, an assistant secretary, and inspectors, at compensations to be fixed by the board; (3) that the board issue annually a directory of licensed chiropractors; (4) that the annual registration fee required of chiropractors be raised to $10, and the fee for licenses by reciprocity to $100; and (5) that the board be authorized to enter into agreements of reciprocity with other states. Since under the California constitution the legislature cannot amend the chiropractic practice act, which was adopted by the people under the initiative system, this bill, if enacted, is to take effect on the adoption of an amendment to the constitution authorizing or ratifying its enactment by the legislature.

ILLINOIS

Indicted for Murder by Abortion.—Dr. Anthony Michael Catania, 5258 West Division Street, Chicago, was indicted by the grand jury, Dec. 28, 1932, on the charge of murder by abortion. Dr. Catania graduated in 1930 from Loyola University School of Medicine, Chicago, and was licensed in Illinois in 1930. He was not a member of the Chicago Medical Society.

Society News.—The Illinois Radiological Society will be addressed in Jacksonville, January 22, by Drs. Edward L. Jenkinson and Leslie L. Veseen, Chicago, on "Treatment of Lesions of the Prostate" and "Pathological Conditions of the Kidney," respectively.——Dr. Robert H. Herbst, Chicago, addressed the Kankakee Medical Society, January 12, on "Transurethral Electroresection of the Prostate Gland."——Dr. Olin West, Chicago, discussed the report of the Committee on the Costs of Medical Care before the Sangamon County Medical Society in Springfield, January 19.——At a meeting of the McLean County Medical Society, January 10, Dr. Maximilian J. Hubeny, Chicago, spoke on "Hypertrophic Spondylitis Accompanied by Radiculitis."

Chicago

Society News.—Dr. Arthur Steindler, Iowa City, addressed the Institute of Traumatic Surgery, January 11, on "Disability Following Simple Fracture at the Wrist"; Dr. Hiram Winnett Orr, Lincoln, Neb., "Problems of Chronic Osteomyelitis," and Dr. Fremont A. Chandler, "Lesions of the Isthmus of the Lower Lumbar Vertebrae."——Dr. Harry Friedenwald, Baltimore, spoke before the Chicago Ophthalmological Society, January 6, on "Retinal Vascular Disease, Its Relation to General Vascular Disease, with Special Reference to Hypertension."——Speakers before the Chicago Surgical Society, January 6, included Drs. Edward Starr Judd, Rochester, Minn., on surgery of the biliary tract, and Ralph B. Bettman and Robert S. Baldwin, "Retrograde Jejunal Intussusception."——Dr. George Waldbott, Detroit, addressed the Chicago Society of Allergy, January 16, on "The Allergic Thymic Child."

INDIANA

Personal.—Dr. Charles C. Dubois, formerly health officer of Warsaw, was elected mayor, December 12.——Dr. Harry H. Botts has been appointed medical officer in charge at the Veterans' Administration Hospital, near Marion.

Bill Introduced.—H. 20, to amend the workmen's compensation act, proposes (1) that the employer of an employee injured in an industrial accident furnish for thirty days after the injury the necessary medical care and that thereafter the industrial board may require the employer to furnish medical care for an additional period not limited in the bill, and (2) that in an emergency, or if the employer fails to provide the necessary care, or for any other good reason, the employee may choose his own physician, the employer being liable for the services rendered.

Society News.—The Indianapolis Medical Society will be addressed, January 24, by Drs. Carl H. McCaskey on "Carcinoma of the Tongue"; Matthew Winters, "Comparative Study of Toxoid and Toxin-Antitoxin Immunization Against Diphtheria," and Charles A. Weller, "Hernia and Postoperative Complications." Speakers at the January 31 meeting will be Drs. John Kent Leasure on "Tuberculosis of the Larynx with Unusual Case Reports"; Delbert O. Kearby, "Papilloma of Larynx," and Barnard J. Larkin, "Ocular Manifestations of General Diseases." Dr. Walter F. Kelly was recently elected president of the society.——Mr. H. J. Anslinger, Washington, D. C., spoke before a joint meeting of the Terre Haute Academy of Medicine, Vigo County Medical Society and the Fifth District Medical Society, Dec. 2, 1932, on "The Narcotic Traffic."——Dr. John H. Warvel, Indianapolis, addressed the Rush County Medical Society recently on "Home Management of Diabetes."

KANSAS

Bill Introduced.—H. 6, to amend the law regulating the production and distribution of peyote, agava americana, and cannabis indica (marihuana), proposes (1) to correct certain errors of spelling in the original act and (2) to make any violation of the act a felony, instead of a misdemeanor, with increased penalties.

Society News.—A symposium on tuberculosis was conducted before the Sedgwick County Medical Society, January 17, by Drs. Thomas S. Finney, Arthur E. Bence, René M. Gouldner, Carl R. Burkead and Lloyd P. Warren, Wichita. Drs. Ralph W. Hissem and C. Alexander Hellwig, Wichita, addressed the society, January 3, on "Transurethral Prostatectomy" and "Pathology and Blood Chemistry of Prostatic Hypertrophy," respectively.

MAINE

Bill Introduced.—S. 1, covering 472 sections, is a proposed code of health and welfare legislation to replace and supplement similar legislation now in force in the state.

Society News.—Dr. Adam P. Leighton, Jr., Portland, was elected president of the Cumberland County Medical Association at its annual meeting in Portland, Dec. 30, 1932, and Dr. William Holt, reelected secretary. Malpractice was the general topic for discussion. The speakers included Dr. Edville G. Abbott, Portland, Chief Justice William R. Pattangall and Judge Sidney St. F. Thaxter.——Dr. Channing Frothingham, Boston, addressed the Penobscot County Medical Association, Dec. 20, 1932, on controversial problems of diagnosis and treatment.

MARYLAND

Dr. Thayer Willed Body to Science.—In his will, Dr. William Sydney Thayer, professor emeritus of medicine, Johns Hopkins University School of Medicine, requested that a necropsy be performed on his body at the earliest possible moment after death. Dr. Thayer died, Dec. 10, 1932. He suggested that the circumstances of a complete anosmia, which he had endured since a resection of his nasal septum about fourteen years ago might be of scientific interest. Dr. Thayer left his collection of medical books to the Welch Library at Johns Hopkins and valuable prints to Harvard University.

MASSACHUSETTS

Personal.—Dr. William Franklin Wood, former assistant director of the Massachusetts General Hospital, is the new director of McLean Hospital, Belmont, succeeding Dr. Kenneth J. Tillotson.——Dr. Channing Frothingham has resigned as associate clinical professor of medicine in Harvard University Medical School, effective September 1. Dr. Frothingham, who has been on the staff of the school since 1908, is to take charge of the medical department of the Faulkner Hospital, Jamaica Plain.——Dr. Reginald Fitz, associate professor of medicine at Harvard University Medical School, Boston, has been elected to membership on the National Board of Medical Examiners.

Free Medical Lectures.—A course of free public lectures on medical subjects, offered by the faculty of medicine of Harvard University, was begun, January 8, when N. W. Fradd spoke on "Balancing Your Health Budget." Dr. William B. Castle spoke, January 15, on anemia. The following speakers will be heard in subsequent lectures, according to the report:

Dr. George H. Bigelow, January 22, The Depression and Health.
Dr. Walter B. Lancaster, January 29, Sparing the Eyes.
Dr. Gustave P. Grabfield, February 5, Rheumatism.
George H. Wright, D.D.S., February 12, Color Changes in the Mouth and Teeth: An Aid in Diagnosis of Systemic Disease.
Dr. William H. Robey, February 19, Let the Head Govern the Heart.
Dr. Henry R. Viets, February 26, Nerve, Nerves and Nervousness.
Dr. Everard L. Oliver, March 5, Care of the Skin and Scalp.
Dr. Shields Warren, March 12, Cancer and Radiation Therapy.
Dr. Randall Clifford, March 19, The Tuberculosis Problem Today.
Dr. Wilson G. Smillie, March 26, A Discussion of the Common Cold.

Bills Introduced.—H. 311 proposes to create in the state department of public health "a division of therapeutics after the plan of the Federal Government. Periodical examinations shall be held for applicants who desire to become practitioners in public or private service. Certificates shall be issued to those who qualify. No one except those who shall qualify shall practice therapeutics as specified under this act." H. 245 proposes to create a system of compulsory physical education in the schools and colleges of the state. H. 106, to amend the medical practice act, proposes that applicants for licenses must have received the degree of doctor of medicine from medical schools approved by the board of registration in medicine. The present law requires applicants to have received that degree from a medical school "which gives a full four years' course of instruction of not less than thirty-six weeks in each year." H. 116, to amend the pharmacy practice act, proposes to raise from $10 to $25 the fee required of those applicants who seek to be registered without examination. H. 208 proposes to authorize the Middlesex College of Medicine and Surgery to confer the degree of doctor of dental medicine. H. 365 proposes that any person feeling aggrieved by any decision of any of the boards of registration in medicine, pharmacy, or veterinary medicine, or of the board of dental examiners, may appeal to the superior court of the county in which such person resides, after receiving notice from the board of the decision objected to. Under the present law the appeal is taken directly to the Supreme Judicial Court. H. 446 proposes (1) to require the consent of a patient before a physician may remove any organ of the body and to require the physician to submit to the patient a written explanation as to the necessity for its removal, and (2) to require the preservation of all organs removed from a patient's body until the patient directs their disposal. H. 477 proposes that every receptacle containing coal tar benzine shall be marked with the word "benzol" and with the word "poison," and every receptacle in which is kept any material containing benzol shall be labeled to indicate within 1 per cent the proportion of benzol incorporated in the mixture and with the word "poison."

MICHIGAN

Hospital News.—The new three story receiving unit hospital at Ionia State Hospital, Ionia, was dedicated, October 24.

Bills Introduced.—H. 50 proposes to amend the law prohibiting adulteration or misbranding in the manufacture and sale of drugs and drug products by repealing the section which authorizes a $6,000 annual appropriation for the enforcement of the act. H. 66 proposes to repeal the law providing for a homeopathic medical department at the University of Michigan.

Personal.—Dr. Henry D. Chadwick, Detroit, was recently appointed by the governor a member of the Tuberculosis Sanatorium Commission, succeeding Dr. Stuart Pritchard, Battle Creek, resigned.——Dr. Harry J. Larson, Crystal Falls, has been appointed coroner of Iron County.——Dr. Clarence C. Urquhart has been appointed part time health officer of Ironwood.

District Conference.—The medical societies of Genesee, Shiawassee and Clinton counties met in Owosso, Nov. 30, 1932, for a district conference. Speakers included Drs. Cyrus C. Sturgis, Ann Arbor, on pneumonia therapy; Plinn F. Morse, Detroit, acute vascular accidents, and James Milton Robb, Detroit, the sinuses. Drs. Sturgis and Robb also spoke on anemia therapy and mastoid disease, respectively. Dr. Frederick C. Warnshuis, Grand Rapids, secretary of the Michigan State Medical Society, concluded the afternoon session with a talk on "Head Injuries." At the dinner meeting, Dr. Robb discussed organization opportunities, and Dr. Warnshuis, organization activities.

MINNESOTA

Mueller Sentenced to Prison.—Dr. Philip Mueller, Minneapolis, was sentenced, Dec. 16, 1932, by Judge Leary of the district court to from ten to forty years in the state prison at Stillwater for manslaughter in the first degree. The penalty for this charge is from five to twenty years, but Mueller having a prior conviction for the same offense in 1912 was sentenced under the habitual criminal act to a double penalty. Mueller is reported to have performed an abortion, Nov. 25, 1932, on a 24 year old woman of St. Paul, whose death occurred Nov. 27, 1932. He was arrested, Dec. 7, 1932. Mueller's license to practice medicine was revoked by the state board of medical examiners in December, 1930, because of habitual indulgence in the use of morphine. He was also tried for manslaughter in 1931, but the jury disagreed. He is 71 years old.

MISSOURI

Hodgen Lecture.—Dr. Frank C. Mann, Rochester, Minn., gave the annual Hodgen Lecture of the St. Louis Surgical Society, January 10. His subject was "Observations upon the Experimentally Produced Peptic Ulcer."

Dr. Jabez Jackson Health Director of Kansas City.—Dr. Jabez N. Jackson assumed the position of health director of Kansas City, Dec. 27, 1932. The Jackson County Medical Society adopted a resolution endorsing the appointment of Dr. Jackson. This is Dr. Jackson's first contact in public health work, his previous experience having been mainly in the field of surgery. Early in his career, he held various college teaching positions. He has also been president of the Western Surgical Association, Missouri State Medical Association, Medical Association of the Southwest, the Kansas City Academy of Medicine, and the American Medical Association.

Society News.—Dr. Edgar W. Spinzig addressed the St. Louis Medical Society, Dec. 6, 1932, on "Importance of the Roentgenological Diagnosis of Spontaneous and Traumatic Pneumoperitoneum"; also at this meeting a symposium on cardiovascular episodes of middle life was conducted by Drs. Ralph A. Kinsella, Elsworth S. Smith and Oswald P. Falk. Dr. Frank J. V. Krebs was elected president of the society, November 25, succeeding Dr. Francis L. Reder.——At a meeting of the Jackson County Medical Society in Kansas City, December 20, Drs. George H. Thiele, Jr., spoke on "Common Fallacies in Diagnosis and Treatment of Rectal Disease," and Frederick B. Campbell, "Relation of Diseases of the Rectum to General Medicine."——Dr. Harry L. White, St. Louis, addressed the Kansas City Academy of Medicine, December 16, on "Recent Contributions to the Physiology of the Kidneys."——The Nodaway County Medical Society celebrated the sixtieth anniversary of its organization, November 11, in Maryville. Dr. Eugene L. Crowson, Pickering, discussed the "Early Days of the Nodaway County Medical Society"; Dr. William Wallis, Maryville, "Practice of Medicine in Nodaway County a Half-Century Ago," and Dr. Charles D. Humberd, Barnard, "High Spots from the Old Minute-Books."

NEBRASKA

Number of Professional Licenses Issued.—Governor Bryan stated, among other things, in his message to the legislature that in the period from Dec. 1, 1931, to Dec. 1, 1932, the bureau of examining boards in the department of public welfare had issued 72 licenses to practice medicine, 3 to practice osteopathy, none to practice chiropractic, 176 to practice nursing, 39 to practice dentistry, 51 to practice pharmacy, 5 to practice chiropody, and 3 to practice optometry. According to the governor, the total number of practitioners licensed to practice in the state, Dec. 1, 1932, was as follows: physicians and surgeons, 2,126; osteopaths, 267; chiropractors, 367; nurses, 1,385; dentists, 1,204; pharmacists, 2,518; chiropodists, 51, and optometrists, 399.

NEW HAMPSHIRE

Bill Introduced.—H. 13 proposes to amend the provisions of the food and drug law with respect to misbranding, so as to include cosmetics and disinfectants, and so that labels need not bear statements of the quantity or proportion of alcohol contained in the packages to which they are affixed.

NEW JERSEY

Society News.—Dr. John A. Kolmer, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, January 13, on "Present Status of Knowledge of the Prophylaxis and Treatment of Infantile Paralysis."——Dr. Edgar Mayer, Saranac Lake, N. Y., addressed the Hudson County Medical Society, Jersey City, January 3, on "The Cavity in Pulmonary Tuberculosis and Its Treatment."——Dr. Lewellys F. Barker, Baltimore, addressed the Middlesex County Medical Society, New Brunswick, Dec. 21, 1932, on "Preventive Medicine from the Standpoint of the Internist: Its Value to Public Health."——Drs. John F. Hagerty, Newark, and Nathan B. Van Etten, New York, addressed the Essex County Medical Society, Newark, January 12, on specialism and cost of medical care, respectively.——Drs. Charles Hendee Smith and Lucy D. P. Sutton, New York, addressed the Bergen County Medical Society, January 10, on modern treatment of chorea.

Tuberculosis Institute.—The Bergen County Medical Society and the Bergen County Tuberculosis Department are offering to physicians a graduate institute on tuberculosis at "Bergen Pines," Bergen County Hospital, Ridgewood. Dr. Esmond R. Long, Philadelphia, gave the first lecture, January 6, on pathology and pathogenesis; Dr. Frederic Maurice McPhedran, Philadelphia, the second, January 13, on roentgen and physical diagnosis and Dr. James Burns Amberson, Jr., New York, the third, January 20, on symptomatology and clinical course. Coming lectures will be as follows:

Dr. James Alexander Miller, New York, nontuberculous disease of the chest and differential diagnosis, January 27.
Dr. Samuel B. English, Glen Gardner, childhood tuberculosis, February 2 or 3.
Dr. William Charles White, Washington, D. C., latest developments in tuberculosis, February 16.
Dr. Berthold S. Pollak, Secaucus, treatment of tuberculosis, February 24.

NEW MEXICO

Society News.—Judge Milton J. Helmick addressed the Bernalillo County Medical Society, Albuquerque, Dec. 8, 1932, on "Where Law and Medicine Meet."——Drs. Francis C. Goodwin and Adolf W. Multhauf, El Paso, Texas, addressed the Grant County Medical Society, Silver City, Nov. 15, 1932, on common disorders of the feet and on transurethral prostatic resection.

NEW YORK

Society News.—Dr. Leroy W. Hubbard, Warm Springs, Ga., addressed the Broome County Medical Society, Binghamton, January 3, on poliomyelitis.——Dr. Harry S. Fish, Sayre, Pa., discussed the diagnostic value of the x-rays at a meeting of the Tioga County Medical Society, Owego, Dec. 13, 1932.

Bills Introduced.—A. 72, to amend the workmen's compensation act, proposes, in effect, to make compensable any occupational disease contracted in any employment covered by the act. A. 63 proposes to prohibit any experiment or investigation on a live dog. A. 145, to amend the workmen's compensation act, proposes to permit an employee injured in an industrial accident to select his own physician and to procure other necessary medical and nursing services, at the expense of his employer.

New York City

Food Exposition.—Plans for an exposition to show the relation of food to health, April 3-8, at the Grand Central Palace, have been announced. Among members of the advisory council of the New York Food and Health Exposition, which sponsors the exhibit, are Drs. Alfred F. Hess, New York, and Milton J. Rosenau, Boston; Elmer V. McCollum, Sc.D., Baltimore, and Lafayette B. Mendel, Ph.D., New Haven, Conn.

Dr. Coley Honored.—The medical board of Memorial Hospital sponsored a testimonial dinner to Dr. William B. Coley at the Waldorf-Astoria, on his sixty-second birthday, January 12, marking his retirement after forty-one years' service on the hospital staff. Dr. John M. T. Finney, Baltimore, was toastmaster and speakers were Drs. Charles Mayo, Rochester, Minn.; George D. Stewart and James Ewing and Frederick S. Jones, dean emeritus, Yale University, New Haven, Conn.

Social Hygiene Conference.—The annual regional conference of the American Social Hygiene Association for New York state and city agencies will be held in New York, January 26. Discussions will be held on "Quackery in New York City," "Clinic Problems Relating to Syphilis and Gonorrhea," and "Sex Education and Mental Hygiene." Among the speakers announced on the tentative program are Drs. Alec N. Thomson, Alfred C. Beck, Shirley Wynne, Ira S. Wile and Nathan B. Van Etten, all of New York; William A. White, Washington, D. C.; Thomas Parran, Jr., Albany, and Charles-Edward A. Winslow, Dr.P.H., New Haven, Conn.

Dr. Schick Honored.—The annual gold medal awarded by Phi Lambda Kappa for conspicuous achievement in the medical sciences was presented to Dr. Béla Schick, in recognition of his work on diphtheria. The award was made at the annual

dinner of the fraternity, January 1, at the Hotel Victoria. Previous recipients of the medal are Drs. Jay Frank Schamberg, Philadelphia; Solomon Solis-Cohen, Philadelphia, and Julius Friedenwald, Baltimore. Gold medals were awarded to Myron G. and Maurice M. Rosenbaum, students at the University of Buffalo School of Medicine, for a joint paper on "The Solubility of Calcium Stearate in Solution Containing Bile and in Water."

Courses for Practitioners.—Nine courses for qualified graduates in medicine to be given at Montefiore Hospital are announced by the administrative board on postgraduate studies in medicine of Columbia University. The courses, beginning January 30 and continuing to March 25, include: diagnosis and treatment of chronic diseases of the lungs and pleura; diseases of metabolism, diabetes and nephritis; chronic diseases of the heart and aorta; clinical electrocardiography; clinical radiology of the heart and great vessels; roentgen diagnosis; chronic diseases of the nervous system; physical therapy, and the diagnosis, pathology and radiotherapy of cancer. Application should be made to Dr. Alan R. Anderson, secretary of the board, Columbia University, 630 West One Hundred and Sixty-Eighth Street.

NORTH CAROLINA

Personal.—Dr. Clarence A. Shore, director of the State Laboratory of Hygiene, Raleigh, completed twenty-five years in that position in December. Dr. Shore was instructor at the University of North Carolina before going to Raleigh in December, 1907.

OHIO

Bills Introduced.—S. 8 proposes to provide for the asexualization of certain classes of socially inadequate inmates of state institutions. S. 9 proposes to amend the state prohibition law so as to permit physicians to prescribe alcoholic liquor under the same general restrictions that are imposed by the Volstead Act and regulations promulgated thereunder.

Changes in State Health Department.—Reorganization of the state health department into six divisions instead of nine was announced in December, 1932, by Dr. Harry G. Southard, state health officer. Dr. Emery R. Hayhurst, Columbus, formerly consultant in the division of industrial hygiene, has been made chief of that division; Dr. Elgie R. Shaffer was made chief of the child hygiene divison, and Dr. Reaves W. De Crow, Portsmouth, succeeds Dr. Shaffer as head of the bureau of local health organization.

Statement of Council on Committee Report.—In an official statement on the final report of the Committee on the Costs of Medical Care, the council of the Ohio State Medical Association announced its agreement with the minority section of the report. The statement says that the majority report practically ignores the fact that the medical profession is well organized in scientific societies, county and state, with the primary purpose under its constitution of promoting the science and art of medicine and the protection of public health. The council advocated (1) payment locally for services to the indigent, (2) evaluation and coordination of medical service by local communities, (3) coordination of urban and rural services, (4) restoration of the general practitioner to the central place in medical practice, (5) opposition to corporate practice of medicine, and (6) careful trial of methods that can be rightly fitted into present institutions and agencies without interfering with the fundamentals of medical practice.

Society News.—Dr. Arthur T. McCormack, state health officer of Kentucky, Louisville, addressed the Cleveland Academy of Medicine, Dec. 16, 1932, on "Public Health—A Responsibility of the Medical Profession." Drs. Torald Sollmann and Harold N. Cole and Katharine I. Henderson, A.B., among others, addressed a joint meeting of the experimental medicine section of the academy and the Cleveland section of the Society for Experimental Medicine and Pathology, Dec. 9, 1932, on a study of the excretion of bismuth.——Dr. Charles F. Geschickter, Baltimore, was the guest speaker at the annual meeting of the Union Medical Association in Akron, January 11, delivering two addresses on pathologic changes of bone and on malignant conditions. Drs. Alexander P. Ormond, Stow, Roll H. Markwith, Vincent C. Malloy and Robert T. Allison, Jr., Akron, reviewed medical progress in 1932.——Dr. Curtis F. Burnam, Baltimore, addressed the Cincinnati Academy of Medicine, January 16, on Hodgkin's Disease. Dr. Michael Scott Kearns will speak, January 30, on "Relationship of the Coroner's Office to Medicolegal Problems," and Dr. Leon Schiff on achlorhydria.

OKLAHOMA

Bills Introduced.—H. 43 proposes to prohibit the possession and distribution of veronal, barbital, luminal, chloral hydrate, bromidia, somnos, marihuana, Indian hemp, hasheesh and loco weed, except on the prescription of a lawfully authorized practitioner of medicine, dentistry or veterinary medicine. H. 48, to amend the law authorizing the governor to prescribe regulations for the sale of alcohol to hospitals, clinics, laboratories and other scientific institutions, proposes that alcohol purchased from federal bonded warehouses or from wholesale drug houses, in compliance with the laws of the United States, by hospitals, clinics or laboratories for routine medical use, may be transferred without a permit being first secured from the governor or without the purchaser being bonded under the provisions of the law.

OREGON

Personal.—Dr. Alfred B. Peacock, Marshfield, was recently elected mayor of the town.——Dr. Robert C. Coffey, Portland, was made an honorary member of the French and Italian societies of urology and surgery during a recent trip abroad.

PENNSYLVANIA

Annual Meeting.—Dr. Dean Lewis, Baltimore, President-Elect of the American Medical Association, and Dr. Olin West, Chicago, secretary of the Association, addressed the Lycoming County Medical Society at its annual meeting, January 11, at Williamsport on "Tumors of Bone" and "Social and Economic Problems of Modern Medicine," respectively. Dr. Lewis also spoke at the annual banquet in the evening on "The Modern Challenge to the Medical Profession," and Dr. West on "The Functions of County Medical Organizations."

Graduate Study Day.—The second "Post Graduate Study Day" at Geisinger Memorial Hospital, Danville, was held, Nov. 30, 1932. A symposium on nontuberculous lesions of the chest was presented by Drs. Francis D. W. Lukens, Philadelphia; Ross K. Childerhose, Allenwood; Carl E. Ervin, Francis W. Davison, Edward McG. Hedgpeth, Claude W. Ashley and Robert Y. Grone. The afternoon was devoted to a symposium on organic diseases of the stomach in which the participants were Drs. Thomas Grier Miller, Philadelphia; Harold L. Foss, Henry F. Hunt and Sydney J. Hawley.

Society News.—Dr. George A. Holliday addressed the Pittsburgh Urological Association, January 13, on syphilis.——Dr. Olin West, secretary and general manager of the American Medical Association, addressed physicians of the sixth councilor district, January 10, at Altoona, on social and economic problems of modern medicine.——The Mercer County Medical Society recently adopted a resolution commending the action of the members who filed the minority report of the Committee on the Costs of Medical Care.——The twenty-seventh annual conference of secretaries of county medical societies and medical editors was held in Harrisburg, Dec. 6, 1932. Among other speakers Dr. Walter F. Donaldson, Pittsburgh, spoke on "The Rights of the Medical Profession" and Dr. Donald Guthrie, Sayre, on "Important Responsibilities of the Medical Profession."——Dr. Maurice C. Pincoffs, Baltimore, addressed the York County Medical Society, York, Dec. 17, 1932, on "Typhus and Typhus-like Fevers."

Philadelphia

Hospital News.—Dedication of the new Greatheart Maternity Building, an addition to Temple University Hospital, took place, Dec. 13, 1932, with ceremonies at which Drs. Jesse O. Arnold and Ralph M. Tyson were the principal speakers.

Personal.—Dr. Charles W. Burr, professor of neurology at the University of Pennsylvania Graduate School of Medicine, has presented 19,000 volumes from his general library to the university.——Dr. Harvey Evert Kendig has been appointed dean of the school of pharmacy of Temple University, succeeding the late Dr. John R. Minehart.

Pharmacy Night.—The Philadelphia County Medical Society will hold a joint meeting with the Philadelphia Association of Retail Druggists, January 25. Addresses will be presented by:

John M. Woodside, Ph.G., member of the state board of pharmacy, Pharmacy's Part in Safeguarding the Public Health.
Clarence A. Pickett, Ph.G., secretary of the Philadelphia Association, The Constructive Influence of Retail Druggists' Associations.
John C. Walton, Ph.G., president, Pennsylvania Pharmaceutical Association, Professional and Commercial Aspects of Pharmacy.
Dr. George C. Yeager, Dispensing by Physicians.

University News.—Temple University School of Medicine recently reorganized its heart clinic under the supervision of Dr. John A. Kolmer, recently appointed professor of medicine. Drs. Hugo Roesler and Joseph B. Wolffe head the staff of

the clinic, which will be open two evenings each week for examination and treatment of employed persons who cannot attend day clinics.——Dr. Herbert M. Evans, Herzstein professor of biology, University of California Medical School, Berkeley, delivered the annual Alpha Omega Alpha Lecture of Jefferson Medical College, January 11, on "Hormones of the Anterior Hypophysis."

SOUTH CAROLINA

Society News.—The Cherokee County Medical Society was reorganized at a meeting in Gaffney, Dec. 1, 1932, at which physicians of the county were entertained by Dr. and Mrs. John H. Cathcart.——Dr. James D. Whaley, Charleston, was elected president of the South Carolina Urological Association at the annual meeting in Florence, November 1, and Dr. Paul W. Sanders, Jr., Charleston, secretary.——The Marlboro County Medical Society held its annual meeting, January 11, in Bennettsville. Among the speakers were Drs. James R. Young, Anderson, president, South Carolina Medical Association, on "Management of Skull Fractures and Brain Injuries"; Hamilton W. McKay, Charlotte, N. C., "Pediatric Urology"; Edgar A. Hines, Seneca, secretary of the state medical association, "1933 and Its Unusual Challenge to Organized Medicine."

SOUTH DAKOTA

Personal.—Dr. Floyd Coslett, assistant superintendent, South Dakota State Sanatorium for Tuberculosis, Sanator, will succeed the late Dr. Rollin E. Woodworth as superintendent of the institution.

Bills Introduced.—H. 3, to amend the pharmacy practice act, proposes (1) to permit persons other than registered pharmacists to sell in original packages patent or proprietary medicines and (2) to permit any person of good moral character who conducts a retail place of business to be licensed annually by the state board of pharmacy to sell in original packages simple household remedies. H. 2 proposes to require applicants for licenses to practice any form of the healing art, as a condition precedent to examination by their respective licensing boards, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology, to be given by a board of examiners in the basic sciences, none of whose members shall be a licensed practitioner of the healing art or any branch thereof.

Society News.—Dr. Augustus G. Pohlman, dean, University of South Dakota School of Medicine, Vermilion, addressed the Sioux Falls District Medical Society, Sioux Falls, Dec. 13, 1932, on "The Heredity-Environment-Endocrine Complex."—— Drs. James F. Taylor, Sioux City, Iowa, and Hermenegild Klima, Tyndall, among others, addressed the Yankton District Medical Society, Dec. 16, 1932, on "Misplaced Placentas and the Effect on Labor" and "Undulant Fever in South Dakota," respectively.——At the semiannual meeting of the South Dakota Academy of Ophthalmology and Otolaryngology in Mitchell, Dec. 4, 1932, speakers included Drs. Charles E. Yates, Lawrence, Kan., on trachoma; Ralph K. Miller, Madison, osteomyelitis of the petrous portion of the temporal bone, and John B. Gregg, Sioux Falls, intra-ocular tumors. Dr. Charles N. Spratt, Minneapolis, presented motion pictures on cataract and glaucoma, and Dr. Ray A. Kelly, Mitchell, presented cases of carcinoma of the eyeball and thrombosis of the retinal artery.

TENNESSEE

Bills Introduced.—H. 26 and S. 48 propose to create a state department of criminal identification and apprehension to be given the duty of acquiring, collecting, classifying and preserving criminal identification records.

Society News.—Dr. James B. Neil addressed the Knox County Medical Society, Knoxville, Dec. 6, 1932, on treatment of prostatic obstruction.——Dr. Tom B. Zerfoss addressed the Nashville Academy of Medicine, Dec. 6, 1932, on acute infectious mononucleosis.

Health at Nashville.—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended January 7, indicate that the highest mortality rate (23.1) appears for Nashville, and the rate for the group of cities as a whole, 13.6. The mortality rate for Nashville for the corresponding week in 1932 was 16, and that for the group of cities, 13. The general death rate for the eighty-five cities for the fifty-two weeks of 1932 was 11.2, compared with 11.8 for 1931. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

TEXAS

Dallas Clinical Conference.—The Dallas Southern Clinical Society has announced that the fifth spring clinical conference will be held, March 27-31, with headquarters at the Baker Hotel. The program will include general assemblies each morning, graduate lectures, round table luncheons, afternoon clinics, an open meeting the first evening, and four evening symposiums. Speakers announced are Drs. Louis A. Buie, Rochester, Minn.; Philip H. Kreuscher, Joseph Brennemann and Percival Bailey, Chicago; Joseph F. McCarthy, New York; Arthur E. Hertzler, Halstead, Kan.; Eugene R. Lewis, Los Angeles; Harry S. Crossen, St. Louis; Lewellys F. Barker, Baltimore; Cyrus C. Sturgis, Ann Arbor, Mich., and Charles C. Dennie, Kansas City, Mo. Dr. James Shirley Sweeney, Dallas, is chairman of the executive committee arranging the conference.

WISCONSIN

Lectures at the University.—Dr. Evarts Ambrose Graham, Bixby professor of surgery at Washington University Medical School, St. Louis, delivered a lecture before the University of Wisconsin Medical Society, Dec. 15, 1932, on "The Hepatic Factor in the Mortality After Operations on the Biliary Tract." Dr. Ira H. Lockwood, Kansas City, Mo., gave a lecture at the university, Dec. 6, 1932, under the auspices of Alpha Omega Alpha and Sigma Sigma, on "A Roentgen Study of the Mammary Gland." Karl F. Meyer, Ph.D., professor of bacteriology and director of the Hooper Foundation for Medical Research, University of California, San Francisco, addressed the university medical society, January 8, on psittacosis.

GENERAL

Examinations in Obstetrics and Gynecology.—At the recent examinations conducted by the American Board of Obstetrics and Gynecology in Los Angeles, Dec. 7, 1932, thirty-three candidates were examined. Of the number, twenty-six were approved, three were conditioned and four failed.

Exhibit on Tropical Medicine.—Prof. W. H. Hoffmann of the Finlay Laboratory, Havana, Cuba, secretary of the section of tropical medicine, parasitology and pathologic anatomy, Pan-American Medical Association, invites specialists of the Latin American countries to send interesting material and specimens to the exhibition of tropical medicine and pathology at the session to be held in Dallas, Texas, March 21-26.

Resolution on Foreign Medical Education.—A prompt investigation of foreign medical education with special reference to licensure of graduates of foreign schools who wish to practice in the United States was urged in a resolution unanimously adopted at the recent annual meeting of the Association of American Medical Colleges in Philadelphia. The resolution expresses the conviction of the association that indiscriminate licensing of both foreign-born and American-born graduates of such foreign schools will result in lowering the quality of medical service in the United States. It was further pointed out that achievements of graduates of foreign schools have been appreciably lower in the past ten years than those of acceptable American and Canadian schools and that increasingly large numbers of American students who have been denied admission to American schools have gone abroad to study with the intention of returning to practice in this country.

Award to Dr. Abel.—Dr. John J. Abel, Baltimore, is the first recipient of the Philip A. Conné Medal, a new scientific honor award "for advancing knowledge of human medicine," it was announced, Dec. 25, 1932. Dr. Abel, who was professor of pharmacology at Johns Hopkins University School of Medicine, Baltimore, from 1893 until his resignation in June, was president of the American Association for the Advancement of Science, during the last year. The medal, which was presented to him at the association's recent annual meeting in Atlantic City, is endowed with funds furnished by Mrs. Madelyn Conné of New York and New Orleans in memory of her husband. The Chemists' Club of New York will administer the endowment for awarding the Conné Medal. Other honors given to Dr. Abel include the Willard Gibbs Medal of the Chicago Section of the American Chemical Society, 1926, and the gold medal of the Society of Apothecaries of London in 1928. He is the editor of the *Journal of Pharmacology and Experimental Therapeutics.*

Medical Bills in Congress.—*Changes in Status:* S. Res. 271 has been indefinitely postponed, proposing to request the Surgeon General of the Public Health Service to make inquiry among the leading physicians and chemists in the United States as to the amount of alcohol a beverage may contain without being intoxicating. S. 572, providing that the United States

shall cooperate with the several states in promoting the welfare and hygiene of mothers and infants, was reached on the Senate calendar, January 3, but consideration of the bill was prevented by Senator Vandenberg, Michigan. H. J. Res. 527 has passed the Senate and House, extending to March 3, 1933, the time within which the joint committee investigating the operation of the laws and regulations relating to the relief of veterans shall report. *Bills Introduced:* S. 5219, introduced by Senator Shipstead, Minnesota, proposes to provide funds for cooperation with the Minnesota state board of control in the extension of the Minnesota State Sanatorium at Ah-Gwah-Ching, Minn. S. 5251, introduced by Senator Shipstead, Minnesota, proposes to authorize the Reconstruction Finance Corporation to make loans to any public or private hospital organized under the laws of any state on the same terms and conditions, and subject to the same limitations, as are applicable in the case of loans to financial institutions. S. 5318, introduced by Senator Davis, Pennsylvania, provides for the forfeiture of vessels, vehicles, or other means used to transport or conceal unstamped narcotic drugs, or to facilitate the purchase and sale thereof.

Report of Commonwealth Fund.—During the year ended Sept. 30, 1932, the Commonwealth Fund of New York expended $1,573,438.09, of which more than half, $808,457.23, was devoted to support of medical and hospital service in rural areas, medical research and public health projects. Activities in advancement of child guidance and mental hygiene accounted for $334,252.17. The fund sponsors six rural hospitals for the double purpose of making modern medical service directly available and of attracting young physicians to rural areas. Public health units are supported in Massachusetts, Tennessee and Mississippi; in these states also the state departments of health with aid from the fund have set up traveling field units to visit local health officers, study their work and suggest possible improvements. Scholarships were given during the year to thirty-two medical students to enable them to prepare for rural practice, and forty-five practicing physicians were given opportunity for graduate study in medical centers. Thirty-six clinical institutes for practicing physicians were held. In Virginia the fund sponsored courses in obstetrics in selected centers throughout the state, this being the only new activity in which the fund engaged during the year. In the field of research the fund granted $36,200 to the Massachusetts State Department of Health to continue a study of pneumonia. Other projects included study of the growth and development of healthy children; multiple sclerosis; dental decay; undulant fever, and trachoma. For the furtherance of mental hygiene the fund has shared the cost of a nation-wide survey of the teaching of psychiatry, provided thirty-five scholarships for advanced study and maintained the Institute for Child Guidance in New York. The work of the institute was curtailed, however, and will be discontinued altogether in June, 1933.

American College of Physicians.—The seventeenth annual clinical session of the American College of Physicians will be held in Montreal, Canada, February 6-10, under the presidency of Dr. Francis M. Pottenger, Monrovia, Calif. The John Phillips Memorial Prize Oration will be delivered Monday evening, February 6, by Dr. William B. Castle, Boston, on "Etiology of Pernicious Anemia and Related Macrocytic Anemias." The prize will be presented to Dr. Castle at the annual convocation Wednesday evening, February 8, when Dr. Pottenger will deliver his official address and Sir Andrew MacPhail, Montreal, an address on "The Source of Modern Medicine." The annual banquet will be held Thursday evening with Stephen Leacock, professor of political economy at McGill University, as the speaker, on "The Waste Spaces of Modern Education." Among features of the general sessions will be a symposium on endocrinology, in which the participants are to be Dr. Charles H. Best, Toronto, Ont.; Edward A. Doisy, Ph.D., St. Louis; Frank A. Hartman, Ph.D., Buffalo; Dr. James B. Collip, Montreal; Dr. Archibald D. Campbell, Montreal; Oscar Riddle, Ph.D., Cold Spring Harbor, N. Y., and Dr. Ernest Gellhorn, Chicago. At a session devoted to pulmonary diseases, speakers will include Drs. Reginald Fitz, Boston; Charles H. Cocke, Asheville, N. C.; Isador David Bronfin, Denver; Edward W. Archibald, Montreal; E. Rist, Paris, France, and Campbell P. Howard, Montreal. Heart disease will be discussed, among others, by Drs. Paul D. White, Boston; John H. Musser, New Orleans; Duncan A. L. Graham, Toronto; James C. White, Boston, and Edwin Cowles Andrus, Baltimore. A group of papers on diseases of the nervous system will be delivered by Drs. George C. Hale, London, Ont.; Roy G. Hoskins, Boston; Wilder G. Penfield, Montreal; Thomas P. Sprunt, Baltimore, and Alfred Stengel, Philadelphia. Mornings will be entirely devoted to clinics and demonstrations in hospitals and laboratories of the McGill University School of Medicine and the University of Montreal Faculty of Medicine.

PHILIPPINE ISLANDS

Medical Activities.—Dr. Basilio J. Valdes, president of the board of medical examiners of the islands, and Col. Kent Nelson, department surgeon, Philippine Department, U. S. Army, addressed the Manila Medical Society in October on "Our Relations to the Public and to the Medical Profession" and "Medical Ethics from the Army Officer's Viewpoint," respectively. The board of medical examiners recently recommended to the Secretary of the Interior revocation of the license of Dr. Juan B. Unson to practice medicine in the Philippines. Dr. Unson was found guilty of unprofessional conduct in that he gave injections of morphine to persons whose condition did not warrant the treatment.

PUERTO RICO

Medical Association of Puerto Rico.—Dr. Rafael Bernabe, San Juan, was elected president and Dr. Edwardo Garrido Morales, Santurce, secretary, of the Medical Association of Puerto Rico at the annual meeting, in Santurce, Dec. 9-11, 1932. Clinics were held Friday morning at the University Hospital and Saturday morning at municipal hospitals. The scientific session occupied Saturday afternoon and Sunday. Among the speakers were:

Dr. Franklin M. Hanger, Jr., New York, on Recognition and Treatment of Common Disorders of the Heart.
William Hoffman, D.Sc., San Juan, Tapeworm Infestation in Man.
Dr. Basilio Davila, Rio Piedras, Tumor of the Brain.
Dr. Ramon M. Suarez, Santurce, Clinical Studies on Uncinariasis.
Dr. Isaac F. Gonzalez Martinez, Santurce, Cancer in Puerto Rico.
Dr. Rafael Lopez Nussa, Ponce, New Gynecologic Methods.
Dr. Bailey K. Ashford, San Juan, Contribution of Hematology to the Diagnosis of Diseases in the American Tropics.
Dr. Enrique Koppisch, San Juan, Tuberculosis in Puerto Rico.

FOREIGN

Journal of Plastic Surgery.—A journal to be known as *Revue Française de Chirurgie Réparatrice, Plastique et Esthétique* has recently been launched by Drs. Louis Dartigues, president and founder, and Charles Claoué, secretary-general, of the French Society of Reparative, Plastic and Esthetic Surgery. Information may be obtained from Dr. Dartigues, 81, rue de la Pompe, or Dr. Claoué, 1, rue Singer, Paris, 16.

Society News.—Dr. Paul Ferreyrolles, Paris, was elected president of the International Society of Medical Hydrology at its meeting in Paris, Oct. 17-20, 1932, and Dr. Edward P. Poulton, London, chairman of the council. Dr. Walter S. McClellan, Saratoga Springs, N. Y., represented the United States at this meeting. The next session will be held in Toulouse in 1933.——Dr. Frank Douglas Turner, Colchester, has been elected president of the Royal Medico-Psychological Association, to take office this month.——A British Health Resorts Association has been organized, with Dr. Alfred Cox, recently retired secretary of the British Medical Association, as secretary.

International Congresses in 1933.—The following international congresses and conferences to be held in Europe during 1933 have recently been announced:

International Congress of Ophthalmology, Madrid, in April. Information may be obtained from Dr. F. Poyales, Olazaga, 3, Madrid.
International Congress of Pediatrics, London, July 18-20.
International Society of Orthopedic Surgery, London, July 19-22.
International Professional Association of Physicians, London, September 7-9.
International Congress on Mental Hygiene, Rome, in September.
International Congress for the Protection of Childhood, Paris, July 4-9. Headquarters, 26, Boulevard de Vaugirard, Paris.
International Hospital Congress, Knocke-sur-Mer, Belgium, June 28-July 3.
International Goiter Conference, Berne, Switzerland, August 10-12.
International Congress on Military Medicine and Pharmacy, Madrid, May 29-June 4.

Turkey Closes Some Narcotic Factories.—Severe state control and limitation of narcotics is now in effect in Turkey in accordance with a decree adopted at a meeting of the cabinet, Dec. 25, 1932. According to the New York *Times*, it was decided that three recently closed narcotic factories in Istanbul will not be allowed to reopen, that poppy cultivation will be limited to meet medicinal opium needs, that Turkey will adhere to the international Hague and Geneva narcotics traffic accords, and that special tribunals will be created to try narcotics smugglers and illegal manufacturers. The cabinet decree concluded, it was said, "Thus we accomplish our most modern and most civilized duty toward the Turkish nation and humanity." Because of the unrestricted manufacture of narcotics in Turkey, the report continued, Istanbul long had been the center of the illicit narcotic traffic until the Popular party, Turkey's sole political party, launched its program of state control of opium. It was said that the Turkish government decided last spring to turn over the manufacture and export of narcotics to a syndicate controlled by a government bank. The producers also are interested in the syndicate, the newspaper reported.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 24, 1932.

Improvement in the Health of School Children

In his report for 1931 Sir George Newman, chief medical officer of the board of education, states that, in spite of industrial depression and the need for national economy, no measurable physical ill effect is yet shown in the child population. The percentage of children found suffering from definite defects (excluding dental defects and uncleanliness) was 20, of which 9 per cent were due to defects of vision and 6 per cent to adenoids and enlarged tonsils. Sir George finds that a new kind of self respect has grown up among our people, a health conscience. The children as a whole are cleaner, better in physique, better fed, better clothed and better nurtured than they have ever been as long as records have been kept. This evidence is clinched by the simple fact that their parents have been through the same hygienic discipline in the schools.

DECLINE IN THE INCIDENCE OF DISEASES

Ringworm, blindness, malnutrition, heart disease, dental decay, tuberculosis and certain infectious diseases have declined among school children in the last twenty years. The decline in the mortality of tuberculosis under 15 years of age from 1921 to 1930 was 36 per cent, 44 per cent and 56 per cent for pulmonary, bone and joint, and abdominal tuberculosis, respectively. The mortality of measles, scarlet fever, diphtheria and whooping cough under 15 years of age has declined steadily for a generation. Comparing the period 1891-1895 with 1926-1930, the fall in annual mortality per million persons living under 15 years of age was: measles, from 1,174 to 381; scarlet fever, from 498 to 55; diphtheria, from 896 to 302, and whooping cough, from 1,151 to 387. The standardized death rate of children aged from 5 to 10 years declined between 1906 and 1930 from 3.6 to 2.3 per thousand; between 10 and 15 years, from 2.1 to 1.5. The mortality rate of children under school age has been almost halved since 1907 (principally by better motherhood), and the death rate of persons between school age and 40 has shown a steady and uniform decline.

RAINFALL AND RHEUMATISM

In a study of acute rheumatism, it is stated that a rainfall below the average for any season of the year appears to be the most potent factor in increasing rheumatic incidence. The combination most likely to give an increase is a rainfall below normal, a diminution in the amount of sunshine and a low temperature. An opposite effect is produced by a rainfall above normal, more than the average sunshine, and a high air temperature.

Treatment of the Virus Diseases

In a lecture before the Pharmaceutical Society of Great Britain, Sir Henry Dale, F.R.S., director of the National Institute for Medical Research, said that a great and practically untouched problem was the treatment of those infectious diseases caused by viruses so minute that they were beyond the range of the most advanced microscopic technic. To such viruses, so inaccessible to investigation, were due smallpox, chickenpox, measles, mumps, whooping cough, influenza, the common cold, infantile paralysis, rabies, dog distemper, foot and mouth disease, cattle plague, fowl plague and swine fever, "a grisly enough array of subtle and invisible enemies for man and his animal servants." Modifications of the virulence of the virus in various ways or use of a serum from an individual who has acquired a natural immunity has enabled prevention to be applied successfully in several cases and even curative treatment to a minor extent. No doubt progress will be made on these lines. But for the treatment of these diseases by drugs there exists no scientific basis and no definite record of practical achievement. What will chemistry and pharmacy be able to offer in the future in the way of specifics which cut short an attack of these diseases? At present the outlook is anything but hopeful. Chemotherapy in its present lines of development shows much of achievement and more of promise for the treatment of infections by the relatively complex organisms of the protozoa, but nothing of either for the treatment of infections by the simpler bacteria. It seems remotely improbable that, along similar lines, substances will be found that will directly attack the still more elementary viruses.

Should Schools Be Closed Because of Poliomyelitis?

In a previous letter (THE JOURNAL, Nov. 19, 1932, p. 1792) the controversy aroused by the decision to close Stowe school because of two cases of acute poliomyelitis was reported. The ministry of health issued advice against such closure and this was endorsed by the *Lancet*, on the ground that closure of a residential school in which poliomyelitis had appeared would tend to distribute the disease more widely in the community. The head master and medical officer of Stowe school replied that in dispersing the school they sent to the parents a strongly worded request that the boys on returning home should be kept away from other young people for a period of three weeks. They now state in a letter to the *Times* that the parents appear to have conscientiously followed this advice, for inquiry shows that since the dispersal of the school at the beginning of October no case of poliomyelitis has resulted in the country. They argue that poliomyelitis is conveyed by carriers and that when a first case in a community of young people is followed by a second the presence of carriers must be assumed. It therefore becomes imperative to separate the members of the community from one another until the carriers cease to carry. The boys in a boarding school cannot be separated from one another while they remain at school. If the school had been kept together, more cases would almost certainly have occurred, and when the school broke up at Christmas a greater number of carriers would have been disseminated over England at a time when all the children of the country would have been in their homes. Moreover, the school has no power to detain boys forcibly if their parents wish to remove them, and the correspondence showed that a large majority of the boys would have been removed immediately on the occurrence of the second case if the dispersal of the school had not taken place.

Birth Control

Though the birth control movement has encountered much ecclesiastical opposition, it has received support in influential social and medical circles. The annual report of the Society for the Provision of Birth Control Clinics shows that there are now sixteen affiliated centers throughout the country and during its ten years' work advice has been given to 38,000 persons. It is claimed that in this time of unemployment the need for the centers is greater than ever and that letters received from women who live in areas remote from the clinics show the necessity for widespread extension of clinics and for the training of medical students in contraceptive measures, which few now receive. The society is doing its best to train as many students and physicians as possible.

The report of the medical officers of the clinics states that notwithstanding the holding of the International Birth Control Conference at Zurich in 1930, they found no grounds for changing the methods followed at the clinics for seven years, which are substantially the same as those of Mrs. Margaret Sanger's clinic in New York. The ideal contraceptive has not yet been discovered.

Training the Civil Population in Gas Defense

All Voluntary Aid and Red Cross detachments are receiving instruction in methods of protection against gas, as the result of the decision of the International Red Cross Committee, taken in 1928. In every country except Great Britain, joint councils have been formed and instruction is given on the lines suggested. In this country it was found impossible to set up an official joint committee, but the British Red Cross Society, in order to carry out the spirit of the international committee's recommendation, added an antigas course to its regular training scheme and has issued a pamphlet entitled "First Aid in Chemical Warfare," which is now being used all over the country. The full scheme of the International Red Cross Committee, now in operation in every country in Europe, includes: 1. Distribution of popular information on chemical warfare. 2. Enrolment of personnel for antigas first aid and also for transport and decontamination. 3. Registration of buildings suitable for use as gas centers and gas-proof centers. 4. Fitting up of collective shelters. 5. Provision of decontaminating materials and antigas equipment. 6. Organization of places for the treatment of gas patients, such as aid posts and hospitals.

Death of E. Treacher Collins

The death of Mr. Treacher Collins removes a leading figure in British ophthalmology. Born in 1862, he was educated at University College School and the Middlesex Hospital. In 1884 he was appointed house surgeon to the Moorfields Hospital, the home of British ophthalmology, where later he made a reputation which ranks him among such masters as Mackenzie, Bowman, Nettleship, Critchett and Priestley Smith. In 1887 he was appointed pathologist and curator of the museum. He thus acquired his minute knowledge of the anatomy and pathology of the eye, which was the foundation of his work. In 1890 he was elected surgeon to the hospital, a post which he held for twenty-seven years. He was appointed Hunterian professor at the Royal College of Surgeons and in 1893-1894 delivered the Hunterian lectures on the Anatomy and Pathology of the Eye, which formed the basis of a treatise entitled Researches into the Anatomy and Pathology of the Eye, published in 1896 and recognized as an original and valuable work. In 1915 he received the Nettleship prize from the Ophthalmological Society in recognition of researches in diseases of the eye, and in 1917 he was elected president of the society. In 1917-1918 he was president of the Council of British Ophthalmologists. In 1922 he was the official representative of the British government at the American Ophthalmological Congress. In 1924 he delivered the Montgomery lecture before the Royal College of Surgeons in Ireland on the Evolution of Pupillary Reactions. In 1929 he was president of the International Congress of Ophthalmologists held at Amsterdam. In 1911 he published a treatise on the Pathology and Bacteriology of the Eye, which proved valuable to specialists. He contributed more than a hundred original papers to the Transactions of the Ophthalmological Society and many others to the Moorfields Reports and to the Section of Ophthalmology of the Royal Society of Medicine. With Mayou he produced the well known book on the Pathology of the Eye. In 1929 he published the History and Traditions of the Moorfields Eye Hospital, which was a history of the origin and development of British ophthalmology, enriched with sketches of the great men who made it and their portraits. It was regretted that with characteristic modesty he omitted a portrait of himself. He was universally respected both at home and abroad not only as a great ophthalmologist but as a man single minded in his devotion to science, always willing to help a colleague and never harboring a thought of envy. Sir John Parsons, another leader of British ophthalmology, considers that in recent years no one has had more widespread influence on the teaching of the fundamental data of ophthalmology than Treacher Collins.

PARIS

(From Our Regular Correspondent)

Dec. 7, 1932.

The Interruption of Pregnancy in Tuberculous Women

Legislation against criminal abortion is rather severe in France. Furthermore, many obstetricians disapprove of the interruption of pregnancy in tuberculous women. They are inclined to doubt that the advance of tuberculosis is inevitable in the gravida. Inoculation with the BCG vaccine is regarded as furnishing sufficiently effective protection to the child. It is a common belief that the diagnosis of tuberculosis is reached too readily in many cases and that in reality the purpose of the abortion is for personal reasons. Professor Brindeau, who occupies a chair of obstetrics at the Faculté de médecine de Paris, holds that the indications for abortion in tuberculous women are rare. In any event, pregnancy should never be interrupted after the fourth month, and not before unless the tuberculosis has been obviously aggravated. Brindeau stated that, since tuberculosis varies considerably with the patient, it is impossible to give a prognosis in all cases. His statistics, covering a period of three years, include only gravidae admitted to hospital at the request of qualified phthisiologists. During the years 1928, 1929 and 1930, in fifty-four cases of tuberculosis in pregnant women, he decided to interrupt pregnancy in sixteen instances. Only three of these patients have since died. On the other hand, he decided to take an expectant attitude in thirty-eight other cases. Of the latter group, twenty-five have since died. In other words, the mortality from tuberculosis was much lower when abortion was done.

The Public Health Budget

The deficit of nearly $500,000,000 in the annual national budget of France has brought about drastic retrenchments. All the public services have suffered heavy reductions in their appropriations. One of the most regrettable reductions, amounting to more than $30,000,000, affects appropriations of the public health service. The time is particularly inopportune. Recent statistics show that the population of France is decreasing, not as a result of the birth rate, which is increasing, but owing to an increase of the general mortality. It is evident that the mortality increase is in direct relation to slow progress in hygiene. The situation will not be improved much by a recent decision of the minister of agriculture, who, in order to assure the consumption of the unusually large wheat crop, ordered that flour for the manufacture of bread must be bolted on the basis of only 66 per cent of the whole grain in place of from 75 to 80 per cent, as heretofore. Thus, one can obtain only 60 Kg. of flour from a 100 Kg. sack of wheat. This regulation makes it possible to use from 10 to 15 per cent more wheat than formerly. But this 66 per cent flour has too little of the outside layers of the grain; that is, too little gluten, vitamins and phosphates. Therefore the general health of the population of France is going to suffer. Politics is playing a part in the situation. The annual campaign against tuberculosis, through the sale of special tuberculosis seals, threatens to be checked, this year, by a peculiar state of affairs. The difficulties of the government have made it necessary to reduce the salaries of civil service employees. There is a general protest against such action. The civil service employees have formed powerful syndicates that threaten to strike. Teachers have decided to refuse to aid in the sale of the tuberculosis seals. This attitude has appeared strange, because from funds collected last year in this manner the committee allotted $20,000 to create a sanatorium for teachers.

International Association for Prevention of Blindness

The Association internationale contre la cécité, organized only two years ago, held its regular meeting in Paris, Nov. 12, 1932. The minister of public health presided. The large

attendance included, among other foreign members, Mr. Bernard Cridland and Bishop Harman of England, Madame Winifred Hathaway of New York, Professor Bartels of Dortmund, Van Duyse of Belgium, Jitta of The Hague, and von Szily of Germany. The meeting was devoted to the preservation of eyesight in children and to the promotion of schools to combat amblyopia. Mr. Pierre Villey emphasized the need of such schools. While institutes for the blind have been created in many countries, persons with dim or impaired vision have been neglected in most countries. Special schools should be created in which methods are used that will permit persons with amblyopia to enjoy the same educational advantages as children with normal vision. Bishop Harman explained that in England a large number of such schools had been created, the first dating back to 1908. There are at present, in London, thirty-seven classes in fifteen schools, with 850 pupils. In addition, 100 places are reserved for amblyopic children in the schools of secondary instruction. Madame Hathaway announced that in the United States there are 409 classes for amblyopic children, located in 118 cities and 22 states. Mr. Bartels described the organization of such schools in Germany and the methods of instruction adopted. The cost per pupil in these schools is, of course, greater than in an ordinary school for children with normal eyesight but is nevertheless much less than the cost of instruction per pupil in schools for the blind. Mr. Auguste Dufour of Lausanne stated that there had been difficulty in creating such schools in Switzerland. There was, however, one school opened at Zurich in 1925 and another at Basel in 1930. Mr. Radslob spoke of the school created at Strasbourg in 1908 and emphasized the need of creating more such schools in France, which has been outstripped in this regard by other countries. Mr. Montbrun, general secretary of the Comité français, stated that in the schools of Paris the proportion of amblyopic children is as 1 to 500-750. The creation of a special class for such pupils, in one school of Paris, has been decided on by the minister of public instruction.

A Discussion of Malaria

At a meeting of the Société de médecine et d'hygiène tropicales, Mr. P. Decourt reported a case in which a person who had formerly had an attack of malaria in the colonies returned to France and, following a slight traumatism, had a recurrence of malaria after a long period of latency, a rare observation. In such cases there is a possible danger of infection of the donor in connection with a blood transfusion. Decourt discussed the preventive administration of quinine to the donor and to the recipient during the days preceding a blood transfusion. During the discussion, Professor Brumpt emphasized the rarity of the revival of a malaria of old standing. He said that it is difficult to be certain that a reinfection has not occurred. This raises the question of the curability of malaria, which appears to be doubted by many, just as many doubt also the absolute curability of syphilis. Mr. Flandin reported a case of recurrence of malaria at the end of five years and another at the end of nineteen years. He added that cases of transmission of malaria from recipient to donor in blood transfusion are not so exceptional. Mr. Lorondo suggested that, in order to make certain that malaria was eliminated, the test of procedures that reactivate it, such as roentgen and ultraviolet rays and the arsphenamines, be applied. Mr. Marcel Léger closed the discussion by saying that, in his opinion, one may admit the possibility of a definitive recovery from malaria, if properly treated, within an average period of three years. However, cases of recurrence after long intervals are well authenticated. Plasmodium vivax and Plasmodium malariae are unquestionably more difficult to dispel than is Plasmodium praecox. The longest period of latency of Hematozoon malariae (sixty years) was reported in 1907 by Rist and Boudet, who found the schizonts of Plasmodium malariae in a patient aged 70, who had left the colonies at the age of 10 and had never since then visited regions where she might have become reinfected. As for the contamination of the donor through the transfusion of blood, there are a number of examples. These contaminations can arise only through an apparatus functioning wrongly at a critical moment.

Mental Changes in Persons Receiving Malaria Therapy

Mr. Pierre Bourgeois, writing in the *Revue médicale française*, gives an account of the mental disorders observed in patients with dementia paralytica, following the application of malaria therapy, even when they are regarded as cured of the disease. The characteristic phenomena of the disease are often replaced by a special psychosis, which develops gradually but steadily and which takes on ordinarily an hallucinatory form. Gradually there appear hypochondria and ideas of persecution and of ill will on the part of the entourage, which are succeeded, and much more rapidly than in chronic hallucinatory psychoses, by hallucinations, first of a general nature, then becoming more and more restricted, and finally taking the direction of a circumscribed delirium. The hallucinations are nearly always auditory, although sometimes tactile and, exceptionally, visual. This hallucinatory delirium may, in certain cases, disappear in the face of a recrudescence of paralytic symptoms. In other cases the delirium has been seen to evolve in a chronic manner over a period of years, being absolutely fixed in its form. It is this fact that has caused disappointment to many psychiatrists; and the frequency of these states constitutes one of their chief objections to malaria therapy. Aside from hallucinatory delirium, the postmalarial psychoses may take on other forms. Of these, the avenging form causes a change of character and makes the patient a most aggressive complainant, who often becomes a menace to the psychiatrist who has subjected him to treatment. Likewise, psychoses of a manic-depressive type have been observed; these sometimes manifest themselves by an attack of typical melancholic depression following immediately the malarization. Vermeylen and Vervaek reported a hypochondriacal type of a depressive nature that followed, in three of their cases, malarization. They see in this new clinical type the psychic reaction of the person who is gradually regaining his power of autocriticism and is chafing under the difficulties of social readaptation. Professor Claude gave the histories of two dementia paralytica patients who, following malaria therapy, began to develop symptoms of dementia praecox. Schulze and Bertolani discussed the development of a schizophrenic syndrome that followed malarization.

BERLIN

(From Our Regular Correspondent)

Dec. 5, 1932.

Precautions in the Use of Arsphenamine Preparations

The council on health has modified the essentials for the use of arsphenamine preparations, as established in 1928. Sulpharsphenamine has been added and silver arsphenamine has been dropped. These important regulations were elaborated by a committee of experts, including Professor Jadassohn of Breslau and Professor Zumbusch of Munich.

The new regulations state that arsphenamine preparations may be employed in all forms of syphilis. The sooner after infection that an adequate arsphenamine treatment is begun, the better the prospects are of an early recovery. Success in the use of arsphenamine preparations requires a complete mastery of the technic.

Before arsphenamine treatment is begun, a thorough study must be made of the patient as to possible earlier infections and his present state of health, which should include a careful examination. During even slight acute disturbances (colds, sore throat, disordered stomach), the injections should be

avoided, unless the indications are imperative. In case of acute disturbances of a severe nature, all injections should be omitted, as they should be in persons who reacted poorly to the last injection and are still suffering from its effects. Arsphenamine injections should not be given a patient on either an empty or an overloaded stomach. Great caution is required also in undernourished, cachectic and anemic patiens; in patients with status thymolymphaticus; in diabetes, goiter, exophthalmic goiter, Addison's disease, pulmonary tuberculosis; in disorders of the heart and blood vessels, kidneys and the liver; in digestive disorders, obesity, alcoholism and epilepsy, and in pregnancy. In such cases, minimal doses should be tried first and the normal dose not given until it is evident that the minimal dose is well borne. The same precautions should be taken with patients who present involvement of the central nervous system.

The size of the dose must be determined in view of the body weight, general health, and the localization, kind, severity and extent of the existing syphilitic phenomena evident in each case. For the first injections, small doses are recommended. Between injections there should be an interval which, in case of larger doses, should range from three to seven days. The administration of maximal doses should not be continued unless the treatment is constantly well borne. In case of combined treatment with compounds of bismuth or mercury, special precautions in regard to the size of the dose should be taken. Before an early injection of arsphenamine and also of bismuth or mercury preparations, the urine must be examined for albumin.

During the treatment, the patient should avoid all unusual bodily exertions and excesses of every kind. Care must be taken that the patient partakes of a nutritious diet. Patients should be instructed to be on the watch for any disturbances that may arise following an injection, such as headache, nausea, dizziness, vomiting, fever, attacks of fainting, insomnia, flushing of the face, hemorrhages, cutaneous eruptions, loss of body weight or a decrease in the amount of urine. After the first injection, there may occur in recent syphilis an increase of body temperature that lasts but a short time and it is not to be taken as an indication for the discontinuance of the treatment. However, any increase in temperature that occurs later suggests caution. Any appearance of the so-called vasomotor syndrome during an injection has a bearing on the continuation of the treatment (smaller doses, possible substitution of a different arsphenamine preparation, subcutaneous injection of 1 mg. of epinephrine ten minutes before the injection of arsphenamine).

Both physician and patient should be on the watch for the appearance of exanthems, even though slight. Exanthems make an interruption of the treatment at least for two weeks imperative, since too early further administration of arsphenamine (or of bismuth and, particularly, of mercury compounds) may cause an exceedingly severe general cutaneous inflammation. Mild exanthems may frequently be checked by intravenous injections of from 0.6 to 1.0 Gm. of sodium thiosulphate. Before resuming treatment, it is best to call a specialist in consultation. With the combined treatment with arsphenamine and bismuth or mercury, special attention must be given to the secondary effects of the preparations used.

The administration of all arsphenamine preparations requires the strictest attention to asepsis. In every instance the control number of the preparation used and the pharmacy from which it was secured should be recorded. The solutions must always be made with great care immediately before they are injected. The plan of dissolving the preparations in the syringe is to be condemned. For the preparation of the solutions, not tap water but sterile distilled water that has been slightly warmed (but not heated above body temperature) should be employed. It is advisable to redistil the water before dissolving the preparation, even though vessels composed of quartz or Jena glass are employed, or one may use sterile distilled water put up in ampules, or the double ampule and syringes consisting entirely of glass. Only perfectly clear solutions, free of visible particles, may be injected.

Since arsphenamine preparations, particularly neoarsphenamine and sodium arsphenamine, readily decompose in the presence of air and become more toxic, each ampule before use must be inspected to see that it is intact and not toxic. The contents of spoiled ampules must not be used, nor remnants of previously opened ampules, nor preparations that have not the usual color. The freshly prepared solutions are to be used at once. It is inadmissible to procure ready-made solutions from a pharmacy, to prepare a sufficient quantity of solution for several patients to be treated in succession, or to allow the solutions to stand more than a few minutes.

In giving intravenous injections, care must be taken that the point of the syringe does not become wet outside with the arsphenamine solution. The needle must lie well within the vein, so that injury of the inner wall of the vein or perforation cannot occur. The injection must be made slowly (in the case of persons with heart defects, the injection must occupy several minutes). On the slightest evidence of pain, or the formation of an infiltrate or of wheals, or on manifestation of dyspnea, congestion or the like, the injection should be immediately halted. If, during the injection, a hindrance is noticed, the injection should not be resumed until, through drawing blood into the syringe, one is assured of the correct position of the needle in the vein. Arsphenamine should be given only by a physician who has thoroughly mastered the technic and who observes conscientiously all precautionary measures.

BELGIUM

(From Our Regular Correspondent)

Nov. 21, 1932.

Biologic Diagnosis of Pregnancy

Mlle. Brouha has shown that a single intravenous injection of 5 cc. of the urine of a pregnant woman into a female rabbit is sufficient to transform the appearance of the ovary of the rabbit, which hypertrophies, becomes congested, and shows follicular maturation and hemorrhagic follicles, which become transformed into corpora lutea. These changes may be seen with the naked eye. The hemorrhagic follicles appear as large bright red spots that become more and more prominent until they reach sometimes the size of a small pea, the color of which changes to a dark red, then to a violet hue, and finally to a bluish black. As a rule, there are several hemorrhagic follicles on the ovary and it may happen that the whole organ assumes various shades of color. The female rabbit always reacts to the injection of gravidic urine by the formation of hemorrhagic follicles. Several females into which the same urine was injected presented each time the identical qualitative results. The reaction begins within twelve to fifteen hours. The response is usually frank after twenty-four or sometimes thirty-six hours. One of the ovaries frequently reacts sooner than the other. This method has some important advantages: 1. It is easy to procure female rabbits. 2. The female rabbit, which shows considerable resistance to injections and to operations, always reacts to the injection of the urine by the formation of hemorrhagic follicles. It is thus unnecessary to use more than one animal. 3. Whereas some hormonal tests require one or more daily injections repeated for several days, the test with the female rabbit necessitates only a single intravenous injection. 4. The reaction is macroscopic and easy to interpret.

The Prevention of Leprosy on the Congo

At the annual medical convention held in Brussels (Journées médicales), Dr. Dubois showed how complex is the problem of the prevention of leprosy in the Congo. Prophylaxis against

leprosy must be developed in the Congo on the basis of partial isolation, combined with treatment. The campaign has to be carried on as follows: in a carefully chosen place a laboratory and a central hospital are established, which are occupied by the chief physician of the leprosy service, who devotes all his time to this work. The laboratory has a double duty. It carries on scientific research and it takes charge of prophylaxis in the surrounding region. Prophylaxis is carried on in centrally located villages in which dispensaries are established. A sanitary agent has charge of three or four villages, in which he supervises the treatment. The physician inspects these villages from time to time and supervises the diagnoses and checks up on results secured. The physician and four or five sanitary agents can thus cover a large area.

Centers of Preventive Medicine

At the inauguration of the fourth center of preventive medicine, located at Anderlecht, near Brussels, Dr. Imianitoff pointed out the results secured by the Société belge de médecine préventive et d'eugénique. Although created only three years ago with seven charter members, it has today 873 organizations, which include nearly 1,250,000 members. In the three centers now functioning, it has been found that the examination of persons who considered themselves free from disease often revealed the existence of conditions the timely treatment of which prevented serious later developments. Dr. Imianitoff emphasized that no treatment is given at the centers of preventive medicine and that these merely refer the patient to the attending physician, to the specialist or to the dispensary.

A New Health Center

The Red Cross Society of Belgium has established a health center at Watermael-Boitsfort, which admits adults and children and combines all the types of dispensaries and consultation centers. The center comprises the services of the medical inspection of schools: dental, otorhinolaryngologic and ophthalmologic dispensaries, with a gymnasium and a room for massage; consultation rooms for medicine, surgery and infantile medicine; an antituberculosis dispensary, a maternity, a library and shower baths.

Roentgen Therapy in Prostatic Adenoma

Addressing the Société belge d'urologie, Dr. Gaudy discussed the contraindications to roentgen therapy in the treatment of prostatic adenoma. The action of roentgen therapy is unquestionable, but it appears to exert its influence more particularly on the congestion and the states resulting therefrom. It is only in the primary stage of prostatic hypertrophy that one obtains favorable results with this treatment.

In the secondary and tertiary stages, roentgen therapy, used for glandular hypertrophy, termed "soft prostate," may bring about temporary improvement without exerting definitive action on the progress of the disease. Roentgen therapy is therefore of some aid in cases in which surgical intervention is refused or contraindicated. If properly done, treatment by roentgen rays presents no dangers and in that respect (but in no other) it is superior to surgical treatment. However, even in the opinion of radiologists who are frank, the most enduring results are secured by the surgical method.

Sterilization of Abnormal Persons

Following the presentation of the papers of Ley and Vervaeck before the Société de médecine mentale of Belgium, a session was devoted to the discussion of the sterilization of abnormal persons. In general, the arguments of a purely scientific nature that have been presented in opposition to the sterilization of abnormal persons have not been refuted: the impossibility of foreseeing with certainty the transmission of defects to posterity, the uncertainty of the laws of heredity and especially of their application to man, even the uncertainties as to the question whether or not the good effects of hygienic and moral reeducation can be transmitted to posterity. A mutilation as serious as sterilization cannot be recommended on a basis that rests only on theories. If sterilization is to be restricted to the grave cases, its aid will be negligible in the crusade against degeneracy. This question cannot be separated from that concerning birth control and if such measures were approved, abuses would be inevitable. The number of unions effected solely for gratification would increase, and that would be for the human race a peril as grave as that of degeneracy.

From the practical point of view, it would seem that one should reserve sterilization for imbeciles and criminals by constitution and recommend birth control measures for other defective persons.

Measures will be taken also that will tend to increase the birth rate among healthy persons. Large families will be encouraged and aided in various ways, but the health of the progenitors is indispensable. In any complete program, constructive eugenics and all other methods for the improvement of the race must be brought into action.

CAPE TOWN

(From Our Regular Correspondent)

Nov. 30, 1932.

The Annual Medical Congress

The twenty-seventh Annual Medical Congress will take place at Cape Town next September under the presidency of Dr. E. B. Fuller, one of the senior surgical specialists in that city. Dr. Fuller is the son of an old minister of the crown and agent general for the Cape Colony in London. He studied at Edinburgh and qualified in 1891. For the past fifteen years he has specialized in genito-urinary diseases.

The congress will probably meet in the new university buildings at Groot Schuur, which are now nearing completion. They have been fourteen years in building and are ranked as among the first of South Africa's architectural marvels, occupying as they do a mountain site that gives them the magnificent background of the imposing Table Mountain. The Cape Town congress is always popular, for the legislative capital of the union is situated in a peninsula that presents many attractions to the visitor.

A Regional Health Conference

A regional health conference, under the auspices of the League of Nations Health Department, held last week at Cape Town, was attended by delegates from England, Singapore, America and all the African states, who were the guests of the government. The subjects discussed ranged from smallpox and yellow fever and the danger of carrier infection by aerial transport to the problems of the organization of health services in native areas. Sir George Buchanan, of the League of Nations Health Department, presided. Unfortunately, little advantage was taken of the opportunities for publicity, and public interest waned considerably after the first day. It is a pity that those responsible for such conferences do not realize the possibilities that they hold for the education of the public. A lecture on some of the subjects discussed—for example, the necessity for adequate protection against smallpox or diphtheria—would have drawn a good audience and been of great value in awakening a public health conscience, which at present is not much in evidence.

Deaths Under Anesthetics

Sir Edward Thornton, minister of health, draws attention in his recently published annual report to the increased incidence of deaths under anesthetics. The death rate is 1.9 per thousand for all anesthetics, and the death rate for ether anesthesia is the highest given in the list of anesthetics. While the figures cannot be relied on to prove the actual mortality rates from

anesthetics, they are alarming enough, and various explanations have been suggested. One is that the high mortality from ether is due to the fact that a locally made ether is used; but there is probably little in this suggestion, as chemically there is no difference between the locally made product and imported ether. A much more probable explanation is that the "anesthetic deaths" are largely "operation deaths" and that ether is selected for the majority of moribund patients as the safest anesthetic. Admittedly our medical students do not get sufficient time to become proficient in administering anesthetics, and something might be done, in the case of large hospitals, in the way of employing a resident anesthetist, for the majority of deaths under anesthetics appear to be in cases in which emergency operations are necessary. There are, however, many factors that have to be considered before the high mortality rate can be accepted as wholly due to the risks of the anesthetic.

Death of Jane Waterston

The death of Dr. Jane Waterston, who is practically the doyenne of the profession in this country, removes one of the most picturesque personalities among us. She was one of the first three pupils who signed the roll for the newly established London School of Medicine for Women, at a time when the entry of women into the profession was resented by most practitioners and by practically all the leading teachers of medicine. When she qualified she had to take the Irish diploma, as it was impossible to obtain an English diploma. She had already been a trained nurse and midwife, serving under the late Dr. Herman at the Old Somerset Hospital in the early seventies of the last century, and before that she had been a mission worker among the Bantu at Lovedale. Her exact age is still a matter of conjecture, but her own statement had always been that she was born at Inverness eighty-eight years ago, the daughter of a bank manager. In 1883 she established herself in private practice at Cape Town and rapidly gained a large clientele and a great reputation as a philanthropic and public spirited medical woman. She served on many public bodies, was an able speaker, a keen politician and a lifelong friend of the late Lord Milner and of Cecil Rhodes. For the past three years she had lived quietly, confining herself to teaching midwifery at the Free Dispensary at Cape Town, but she was still vigorous and always refused to be considered an invalid. Her last illness was a matter of a few weeks, and her death did not come as a surprise. We have lost in her one of our most respected colleagues, whose special place it will be impossible to fill.

Marriages

WALTER CHARLES J. BRINKMAN, Veblen, S. D., to Miss Gaynetta Weldon of Chicago, Nov. 24, 1932.

WILLIAM EDGAR VAN ORDER to Miss Henrietta Caulkins, both of Chattanooga, Tenn., Nov. 30, 1932.

HUBERT PYLANT CLEMMER, New Orleans, to Miss Pauline Merritt of Ripley, Miss., in October, 1932.

FRANCIS H. PATERNOSTRO, Williamsport, Pa., to Miss Alice Sullivan of Philadelphia, Nov. 16, 1932.

NATHAN SCHAFFER to Miss Estelle R. Muscatt, both of East Orange, N. J., Dec. 17, 1932.

JOSEPH A. RUSSELL, Milwaukee, to Miss Catherine Nagle at Oconto, Wis., Oct. 29, 1932.

JAMES LAWRENCE BOLT, Easley, S. C., to Miss Anne Swain of Ocalo, Fla., Nov. 24, 1932.

ROBERT E. HOWARD, Cincinnati, to Miss Ruth Long of Hamilton, Nov. 24, 1932.

CARL B. WELCH to Miss Cornelia Lester, both of Bainbridge, Ga., Dec. 3, 1932.

ALFRED P. HANCUFF, Toledo, Ohio, to Miss Dorothy Henning, recently.

Deaths

Edward Nathaniel Brush ⊕ Baltimore; University of Buffalo (N. Y.) School of Medicine, 1874; emeritus professor of psychiatry, University of Maryland School of Medicine and College of Physicians and Surgeons; member and past president of the American Psychiatric Association; past president of the Mental Hygiene Society of Maryland; member of the National Committee for Mental Hygiene; honorary member of the Medico-Psychological Association of Great Britain and Ireland, and the Société de Médecine Mentale, Belgium; foreign associate member of the Société Médico-Psychologique, Paris; physician in chief and medical superintendent of the Sheppard and Enoch Pratt Hospital, 1891-1920; editor of the *Buffalo Medical Journal*, 1874-1879; associate editor of the *American Journal of Insanity*, now known as the *American Journal of Psychiatry*, 1878-1884, 1897-1904 and editor, 1904-1931; aged 80; died, January 10, of pneumonia.

William Arthur La Field ⊕ Bridgeport, Conn.; New York Homeopathic Medical College and Hospital, 1905; clinical professor of radiology, Yale University School of Medicine, New Haven; president of the Connecticut State Medical Society; member of the American Roentgen Ray Society, New England Roentgen Ray Society, Radiological Society of North America, American College of Radiology and the American Radium Society; roentgenologist, 1913-1926, and director of roentgenology and radium therapy since 1926, Bridgeport Hospital; consulting roentgenologist to the Stamford Hospital since 1928; radiologist in chief to the New Haven Hospital and New Haven Dispensary; aged 51; died, Dec. 26, 1932, of illuminating gas poisoning, presumably self-administered.

Percy Walthall Toombs ⊕ Memphis, Tenn.; Tulane University of Louisiana School of Medicine, New Orleans, 1905; professor of obstetrics, University of Tennessee College of Medicine; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; fellow of the American College of Surgeons; president of the Memphis and Shelby County Medical Society; formerly health officer of Greenville, Miss.; aged 52; consulting obstetrician to St. Joseph's Hospital; obstetrician in chief, maternity division, Memphis General Hospital and the Baptist Memorial Hospital, where he died, January 3, of heart disease.

George Fetterolf ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1891; professor of otolaryngology at his alma mater; president of the American Laryngological Association; member of the American Laryngological, Rhinological and Otological Society and the American Association of Anatomists; served during the World War; consulting laryngologist to the Phipps Institute, the University Hospital and the Methodist Hospital, Philadelphia, and the Eagleville (Pa.) Sanatorium; on the editorial board of the *Archives of Otolaryngology;* aged 63; died, Dec. 29, 1932, of cerebral thrombosis.

George Milton Kline ⊕ Boston; University of Michigan Medical School, Ann Arbor, 1901; since 1916 commissioner of the Massachusetts Department of Mental Diseases; member and past president of the American Psychiatric Association; member of the New England Society of Psychiatry and the American Psychopathological Association; member of the committee on organization of the first International Congress on Mental Hygiene; superintendent of the Danvers (Mass.) State Hospital, 1912-1916; aged 54; died, January 5, of heart disease.

Claude Edwin Armstrong, Oconto, Wis.; Chicago Medical College, 1883; member of the State Medical Society of Wisconsin; for many years city health officer; member of the board of education; on the staff of the Oconto County and City Hospital; aged 71; died suddenly, Dec. 20, 1932, of heart disease, following pneumonia.

John Charles Malster ⊕ Stromsburg, Neb.; Jefferson Medical College of Philadelphia, 1896; also a pharmacist; for six years councilor of the Sixth District Medical Society; formerly member of the state legislature and mayor of Stromsburg; aged 72; died, Nov. 7, 1932, of angina pectoris.

William Bryan Gaston, Clarksburg, W. Va.; University of Maryland and College of Physicians and Surgeons, Baltimore, 1925; member of the West Virginia State Medical Association; served during the World War; aged 34; died, Dec. 12, 1932, in St. Mary's Hospital, of pneumonia.

Zalmon Omar Sherwood ⊕ Geneva, Ohio; Medical Department of Western Reserve University, Cleveland, 1911; past president of the Ashtabula County Medical Society; served

during the World War; aged 46; died, Dec. 13, 1932, of pneumonia.

Francis Xavier Voisard, Sacramento, Calif.; School of Medicine and Surgery of Montreal, Que., Canada, 1891; member of the California Medical Association; aged 62; died, Nov. 5, 1932, in the Sutter Hospital of intestinal obstruction and peritonitis.

Ulysses G. Whiting ⊕ Martinsville, Ind.; University of Louisville (Ky.) School of Medicine, 1897; medical director and manager of the Whiting Mineral Springs Sanitarium; aged 63; died, Dec. 13, 1932, of arteriosclerosis and diabetes mellitus.

Edward Charles Barton, Brooklyn; Long Island College Hospital, Brooklyn, 1921; member of the Medical Society of the State of New York; aged 34; was found dead, Dec. 22, 1932, of an incised wound of the throat, presumably self-inflicted.

Charles John Besta ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1926; on the staff of the House of Correction and Police Emergency Hospital; aged 36; died, Dec. 24, 1932, of cerebral hemorrhage and arteriosclerosis.

Samuel Clark, Cochrane, Ala.; Medical College of Alabama, Mobile, 1878; Missouri Medical College, St. Louis, 1880; member of the Medical Association of the State of Alabama; aged 74; died, Dec. 15, 1932, of heart disease.

Daniel Lafayette Carmichael, Jr., Los Angeles; Jefferson Medical College of Philadelphia, 1911; owner of the Sunland (Calif.) Sanatorium; aged 49; died, Dec. 13, 1932, in the Pasadena (Calif.) Hospital, of pneumonia.

Charles Lee Jenkins, Caledonia Farm, N. C.; University of the City of New York Medical Department, 1890; member of the Medical Society of the State of North Carolina; aged 67; died, Nov. 4, 1932, of angina pectoris.

Mary E. Gregg, Chicago; Hahnemann Medical College and Hospital, Chicago, 1891; for many years a medical missionary; aged 74; died, Dec. 25, 1932, in the Presbyterian Hospital, of injuries received in a fall.

Walter Merritt Seward ⊕ Triplet, Va.; University of Virginia Department of Medicine, Charlottesville, 1886; aged 70; died, Dec. 20, 1932, in the University of Virginia Hospital, University, of carcinoma of the liver.

Henry Smith Bartholomew, Napanoch, N. Y.; New York University Medical College, 1897; served during the World War; aged 63; died, Dec. 20, 1932, in the Roosevelt Hospital, New York, of myelogenous leukemia.

Llewellyn T. Seavey, Port Townsend, Wash.; University of California Medical Department, San Francisco, 1878; for many years quarantine officer in the U. S. Public Health Service; aged 75; died, Oct. 25, 1932.

Melrose Edmund Weed ⊕ Point Pleasant, Pa.; Jefferson Medical College of Philadelphia, 1929; assistant demonstrator of clinical surgery at his alma mater; aged 28; was killed, Dec. 9, 1932, in an automobile accident.

Raymond Fisher Hain, Shillington, Pa.; Johns Hopkins University School of Medicine, Baltimore, 1914; member of the American Urological Association; aged 43; died, Nov. 18, 1932, of carcinoma of the rectum.

William Edgar Bright ⊕ North Hampton, Ohio; Ohio Medical University, Columbus, 1897; aged 66; on the staff of the Springfield (Ohio) City Hospital, where he died, Dec. 13, 1932, of coronary thrombosis.

George Claiborne Antony ⊕ Alexandria, La.; University of Tennessee College of Medicine, Memphis, 1918; served during the World War; aged 41; died, Dec. 11, 1932, in a hospital at Oklahoma City.

John Lyman Potter, Portland, Maine; University of Vermont College of Medicine, Burlington, 1904; member of the Maine Medical Association; aged 54; died, Dec. 1, 1932, in the State Street Hospital.

James Wimberly Patterson, Dawson, Ga.; Vanderbilt University School of Medicine, Nashville, Tenn., 1884; member of the Medical Association of Georgia; aged 69; died, Dec. 7, 1932, of diabetes mellitus.

James Hughes Letcher, Henderson, Ky.; University of Louisville School of Medicine, 1873; member of the Kentucky State Medical Association; aged 86; died, Dec. 6, 1932, of an injury received in a fall.

Charles Borromes Fitzpatrick, Maywood, Calif.; College of Physicians and Surgeons, Medical Department of Columbia College, 1890; aged 63; died, Nov. 23, 1932, in Los Angeles, of mitral stenosis.

Mathews William Flournoy, Los Angeles; St. Louis Medical College, 1877; Jefferson Medical College, Philadelphia, 1890; aged 79; died, Nov. 27, 1932, of gastric hemorrhage and chronic nephritis.

William Christie, Chicago; McGill University Faculty of Medicine, Montreal, Que., Canada, 1887; aged 70; on the staff of the Woodlawn Hospital, where he died, January 3, of cerebral hemorrhage.

Fred Wellington Morse, Oakland, Calif.; Medical Department of the University of California, San Francisco, 1891; aged 77; died, Nov. 24, 1932, of coronary thrombosis and arteriosclerosis.

Thomas Conard Unthank, Kansas City, Mo.; Howard University College of Medicine, Washington, D. C., 1898; aged 66; died, Nov. 28, 1932, of bronchopneumonia and coronary sclerosis.

William Sidle Mallory, Manila, P. I.; State University of Iowa College of Medicine, Iowa City, 1928; aged 27; died, Dec. 27, 1932, in a local hospital, of bullet wounds, presumably self inflicted.

Walter B. Sabey, Ravena, N. Y.; Albany Medical College, 1893; member of the Medical Society of the State of New York; health officer of Ravena for many years; aged 70; died, Dec. 9, 1932.

Sibyl Harriot Smeby, Minneapolis; University of Minnesota Medical School, Minneapolis, 1932; aged 27; intern, Minneapolis General Hospital, where she died, Oct. 2, 1932, of septicemia.

Adajah Behrend, Washington, D. C.; Georgetown University School of Medicine, Washington, 1866; Civil War veteran; aged 91; died, Dec. 27, 1932, of bronchopneumonia and influenza.

James Harvey Banks ⊕ Visalia, Calif.; Keokuk (Iowa) Medical College, 1892; College of Physicians and Surgeons of Chicago, 1897; aged 72; died, Nov. 11, 1932, of myocarditis and nephritis.

Emmett Alexander Winter, St. Albans, W. Va.; University of Louisville (Ky.) School of Medicine, 1909; aged 72; died, Dec. 8, 1932, of injuries received in an automobile accident.

William Harry Smedley, Capron, Okla.; St. Joseph (Mo.) Medical College, 1888; member of the Oklahoma State Medical Association; aged 69; died suddenly, Dec. 16, 1932, of angina pectoris.

Thomas John Sullivan, Chicago; University of Michigan Medical School, Ann Arbor, 1880; fellow of the American College of Surgeons; aged 75; died, Dec. 17, 1932, of pneumonia.

Ellen Hammond Gladwin, Hartford, Conn.; Woman's Medical College of the New York Infirmary for Women and Children, 1872; aged 87; died, Dec. 12, 1932, of myocarditis.

Theodore Bachly Pearson ⊕ Nicholasville, Ky.; University of Louisville School of Medicine, 1903; veteran of the Spanish-American War; aged 53; died, Dec. 12, 1932, of heart disease.

Thomas Edwin Craig, Louisville, Ky.; University of Louisville School of Medicine, 1910; served during the World War; aged 44; died suddenly, Dec. 26, 1932, of heart disease.

Christian A. Hegge, Austin, Minn.; College of Physicians and Surgeons of Chicago, 1893; on the staff of St. Olaf Hospital; aged 67; died, Dec. 14, 1932, of coronary thrombosis.

Ella Kyes Dearborn, Portland, Ore.; University of Michigan Homeopathic Medical School, Ann Arbor, 1888; aged 73; died, Nov. 27, 1932, in Los Angeles, of lobar pneumonia.

Charles E. Moore, Alden, Pa.; College of Physicians and Surgeons, Baltimore, 1883; member of the Medical Society of the State of Pennsylvania; aged 71; died, Dec. 1, 1932.

Joseph Hallett, Bloomington, Ill.; Hahnemann Medical College and Hospital, Chicago, 1878; Civil War veteran; aged 89; died, Nov. 13, 1932, of cerebral hemorrhage.

Leo Alonzo Berrey, Corpus Christi, Texas; University of Oklahoma School of Medicine, Oklahoma City, 1916; aged 49; died, Dec. 14, 1932, of cerebral hemorrhage.

Benjamin Rush Kohler ⊕ Reedsville, Pa.; Western Reserve University Medical Department, Cleveland, 1885; age 67; died, Dec. 2, 1932, of myocarditis.

Robert E. L. Burford ⊕ Brunswick, Ga.; University of Louisville (Ky.) School of Medicine, 1889; aged 71; died, Dec. 1, 1932, of myocarditis and influenza.

Arthur Wilbur Dawson, Owensboro, Ky.; Louisville Medical College, 1907; aged 57; died, Nov. 18, 1932, of pulmonary edema and auricular fibrillation.

Russell William Reed, Almena, Kan.; Washington University School of Medicine, St. Louis, 1928; aged 35; died, Oct. 8, 1932, of pulmonary tuberculosis.

Allen Fort Caldwell, Atlanta, Ga.; Atlanta Medical College, 1915; member of the Medical Association of Georgia; aged 41; was found dead, Nov. 10, 1932.

Gaudiose Lemaitre Duhaime, Fall River, Mass.; Baltimore Medical College, 1896; aged 71; died, Oct. 15, 1932, of myocarditis and chronic nephritis.

John Lindsay Davis, Los Angeles; Miami Medical College, Cincinnati, 1881; aged 76; died, Dec. 11, 1932, of bronchopneumonia and diabetes mellitus.

Sommers T. Pettingill, Seal Beach, Calif.; State University of Iowa College of Medicine, Iowa City, 1879; aged 76; died, Nov. 15, 1932, of influenza.

Frank H. Kucera, Verdigre, Neb.; John A. Creighton Medical College, Omaha, 1904; aged 53; died suddenly, Oct. 25, 1932, of chronic myocarditis.

John C. Branch ⊕ White Cloud, Mich.; Kentucky School of Medicine, Louisville, 1895; aged 80; died, Dec. 26, 1932, of an injury received in a fall.

William Thomas Porter, Jackson, Tenn.; Vanderbilt University School of Medicine, Nashville, 1880; aged 82; died, Nov. 28, 1932, of nephritis.

Charles D. Herron, South Pasadena, Calif.; Hahnemann Medical College of Philadelphia, 1872; aged 97; died, Nov. 7, 1932, of arteriosclerosis.

Robert Joseph McAdams ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 59; died, Dec. 13, 1932, of pneumonia.

William E. Peters, Carlisle, Pa.; Hahnemann Medical College of Philadelphia, 1907; aged 48; died suddenly, Dec. 11, 1932, of heart disease.

Nelson M. King, Indianapolis; Medical Department of Hamline University, Minneapolis, 1902; aged 65; died, Dec. 16, 1932, of heart disease.

William John Sandy ⊕ Martinsville, Ind.; Medical College of Indiana, Indianapolis, 1900; aged 58; died, Dec. 11, 1932, of metastatic carcinoma.

John H. Frank, Milwaukee; Milwaukee Medical College, 1902; aged 62; died, Dec. 14, 1932, of carcinoma of the stomach with metastasis.

James Erwin Reed, Bartow, Fla.; Syracuse University College of Medicine, 1876; aged 80; died, Nov. 10, 1932, of heart disease.

Isaac B. Julian, Salina, Kan.; Homeopathic Medical College of Missouri, St. Louis, 1891; aged 74; died recently, of heart disease.

Joseph H. Marshall ⊕ Southold, N. Y.; University of the City of New York Medical Department, 1887; aged 78; died, Nov. 4, 1932.

Elmer N. Souder, Souderton, Pa.; Jefferson Medical College of Philadelphia, 1895; aged 61; died, Nov. 29, 1932, of myocarditis.

Austin A. Lamar, Middletown, Md.; Baltimore Medical College, 1898; aged 56; died, Dec. 11, 1932, of uremia and nephritis.

David Small Shellabarger, Edmonds, Wash.; College of Physicians and Surgeons of Chicago, 1886; aged 73; died, Oct. 12, 1932.

John Leon Houseworth, Los Angeles; College of Physicians and Surgeons, Keokuk, Iowa, 1897; aged 61; died, Nov. 25, 1932.

Charles Callery Croushore, Greensburg, Pa.; University of Maryland School of Medicine, 1905; aged 53; died, Nov. 17, 1932.

Otto J. Wolfgram, Milwaukee; St. Louis University School of Medicine, 1906; aged 57; died, Dec. 16, 1932, of heart disease.

William Wallace Barden, Benton, N. Y.; Homeopathic Medical College of Philadelphia, 1869; aged 87; died, Nov. 22, 1932.

Philo Hull, McFarland, Calif.; University of Michigan Medical School, Ann Arbor, 1887; aged 74; died, Nov. 27, 1932.

John Manley Reid, Blackwell, Okla.; Kansas City Homeopathic Medical College, 1897; aged 85; died, Sept. 1, 1932.

John H. McCartney, Sodus, Mich.; Fort Wayne College of Medicine, 1896; aged 69; died, Dec. 9, 1932, of heart disease.

Bureau of Investigation

DR. STOLL'S DIET-AID

Several inquiries have been received within the past year regarding "Dr. Stoll's Diet-Aid, the Natural Reducing Food." A Wisconsin physician writes:

"A patient of mine, who runs a beauty parlor, came in for advice in regard to selling a preparation put on the market under the name of Diet-Aid for the purpose of reducing weight. This formula is supposed to have originated with a Dr. Stoll, and it seems his scheme is to sell this through beauty parlors, and I guess there is considerable profit in it for the beauty parlors. The tin can containing this preparation is labeled —Dr. Stoll's Diet-Aid. The address is given as—Diet-Aid, Inc., 9 South Kedzie Avenue, Chicago, Illinois. Do you know anything about this preparation? A report on it will be appreciated very much."

A Kentucky physician wrote:

"Could you tell me what Dr. Stoll's Diet-Aid contains?"

A New York physician inquired:

"Will you kindly give me all the information available concerning Dr. Stoll's Diet-Aid? Has it any therapeutic value, or are there any harmful ingredients?"

Dr. Stoll's Diet-Aid is advertised under such claims as:

"When used as a beverage according to directions, it is absolutely guaranteed to reduce fat."

"Diet-Aid is the answer of science to the demand for effortless and safe method of reducing excess fat."

"Dr. Stoll's discovery will bring a new ray of sunshine into the life of any fat person."

The address of Diet-Aid, Inc., is also the address of Dr. John E. Stoll, who, according to our records, was born in 1900, was graduated by Rush Medical College, Chicago, in 1925, and licensed in Illinois the same year. Dr. Stoll is a member of the Chicago Medical Society and through that has qualified as a Fellow of the American Medical Association. In view of these facts, the Bureau of Investigation wrote to Dr. Stoll and asked him several questions regarding the product Diet-Aid and the company that puts it out. Dr. Stoll answered the inquiries fully and frankly, stating, in effect: (1) that the Diet-Aid company was incorporated in Illinois, March 23, 1932, by Bruce W. Hubbard of Oak Park, Ill., H. C. Hubbard of Rockford, Ill., and John E. Stoll of Chicago; (2) that Diet-Aid is intended to be taken in the form of a beverage by those on a reducing diet, and is a compound of milk chocolate, starch, and a water extract of roasted whole wheat and bran; (3) that Diet-Aid has the following composition:

Carbohydrates	75.5 per cent
Crude fat	3.6 per cent
Crude protein	9.2 per cent
Ash	5.6 per cent
Moisture	6.1 per cent

The Bureau of Investigation again wrote Dr. Stoll, pointing out that he had failed to state the amount of Diet-Aid to be used in making the ordinary drink of his preparation, and suggesting that a preparation consisting of over 75 per cent of carbohydrates, nearly 4 per cent crude fat, and over 9 per cent crude protein would hardly, in itself, be looked upon as a reducing agent.

Dr. Stoll replied that in making the ordinary drink of Diet-Aid, one level teaspoonful was used in a cup of water. This weighs about 3 grams, and in view of the composition of Diet-Aid, would give 9 calories of carbohydrate, a trifle over 1 calorie of protein, and a little less than 1 calorie of fat, or almost 11 calories (10.89) in all, in a cup of Diet-Aid. In this connection, it is worth remembering that a tablespoonful of whole milk has a fuel value of 14 calories.

According to the directions on the trade package, the person who is using Dr. Stoll's Diet-Aid as a reducing agent is told to substitute "one or more cups" of Diet-Aid in the place of breakfast and lunch. The average sedentary woman's daily fuel requirements range from 1,800 to 2,300 calories. The breakfast for such a woman would call for caloric values ranging between 400 and 600, the average luncheon should range between 600 and 800 calories, while dinner should run from 800 to 1,100 calories. According to Dr. Stoll's plan, such a woman, in the place of the 400 to 600 calories for her breakfast, would take "one or more cups" of Diet-Aid having a fuel value of less than 11 calories to the cup, of which 9 calories would be carbohydrates. The same would be true for the luncheon.

Whatever virtues Diet-Aid may have as a pleasant drink, the idea of using the preparation as a substitute for breakfast and luncheon in cases in which reduction in weight is sought would seem to be without scientific basis. The person who follows the Diet-Aid suggestion must inevitably receive a hopelessly unbalanced diet.

Correspondence

AN EYE SPECULUM FOR CATARACT OPERATIONS

To the Editor:—My attention has been called to a communication in THE JOURNAL, Dec. 3, 1932, from Dr. Walter B. Lancaster commenting on an eye speculum for cataract extraction which I described and illustrated in THE JOURNAL, Oct. 8, 1932, page 1252.

Dr. Lancaster says that the eye speculum is a good illustration of how far one can go afield if one starts from an erroneous premise.

I started from the premise that a patient with a cataract incision and an unsupported speculum in the eye can expel vitreous by a contraction of the orbicularis muscle. If that premise is erroneous, I have indeed gone far afield.

I agree fully with Dr. Lancaster when he says, "Expulsion of vitreous during cataract operations may come from either or both of two causes: pressure on the eyeball by the surgeon, or pressure on the eyeball by the patient through muscular action." If the surgeon causes expulsion of the vitreous by pressure on the eyeball, that is the surgeon's fault. If the patient causes expulsion of the vitreous by pressure on the eyeball by means of muscular action, that is something for the surgeon to provide against, if possible. That is exactly what I am trying to forestall by means of a speculum that prevents the patient making pressure on the eyeball by means of the orbicularis muscle.

Dr. Lancaster says the idea that the muscles of the lids are the chief or even the sole cause of expulsion of vitreous when the patient squeezes is widespread. He has coupled two statements together here which I think should be separated. When he says that "the pressure of the lids is not the sole cause of the expulsion of the vitreous when the patient squeezes," I agree with him. When he says "it is not the chief cause," I am amazed.

Dr. Lancaster is proving his case by the Duke-Elders, so I will let them answer his statement that the muscles of the lids are not the chief cause of expulsion of vitreous when the patient squeezes. They speak as follows: "The enormous influence of the extra-ocular muscles on the intra-ocular pressure demonstrates the necessity for adequate akinesia in all intra-ocular operations. When it is remembered that a relatively mild contraction of the orbicularis raises the intra-ocular pressure from 27 to 53 mm. (Hg), the danger of loss of vitreous is obvious unless this muscle is thrown out of action.

"It follows that in all such operations the orbicularis should be paralyzed either by injection of the facial nerve as it crosses the ramus of the mandible or by a local injection around the orbit."

It is quite evident from this quotation that the Duke-Elders and I are in complete accord as to the danger of expulsion of the vitreous in even a mild contraction of the orbicularis, and the absolute wisdom of putting that muscle out of action in all cataract operations. They accomplish the result in one way and I in another. There is no objection that I can see to a combination of the methods. It would make assurance doubly sure. The Duke-Elders say that even a mild contraction of the orbicularis raises the intra-ocular pressure from 27 to 53 mm. of mercury and there might still be power enough in the partially paralyzed lids to cause an expulsion of vitreous.

Having disposed of the influence of the orbicularis, I will take up the question of the muscles of the eyeball.

The Duke-Elders used a drug that caused a powerful contraction of all the muscles of the eyeball. The recorded rise of the intra-ocular pressure was 6 mm. of mercury. I think this condition would hardly be duplicated in operative work, as I think it hardly likely that all the muscles of the eyeball would contract at the same time. If one set of muscles contracted, their opponents would probably relax, thus to a certain extent counterbalancing the pressure; but granting that the muscles of the globe could raise the pressure 6 mm., I do not think this rise would equal that made by the necessary pressure of the surgeon in extracting the lens. In other words, if the orbicularis can be put out of commission, I think one need not worry about the pressure exercised by the muscles of the eyeball.

Dr. Lancaster interpreted a statement of mine in a way that I did not intend. He writes: "Dr. Cullom says he has seen vitreous expelled even when the lids were firmly held by elevators. This should make one skeptical enough to investigate the other possible factors." The idea I meant to convey is that an elevator held by hand is not proof against a sudden, unexpected contraction of the orbicularis. The assistant's mind is necessarily on the field of the operation and an unexpected movement is quite likely to catch him off his guard. It was this very possibility that caused me to devise the speculum.

Dr. Lancaster says that the loss of vitreous in his practice in the last twenty years has been small. I congratulate Dr. Lancaster on his skill, but that does not solve the problem. He might do a thousand cataract operations without the loss of vitreous in a single case, but in every one of the thousand cases there is present the potential danger of loss of vitreous. The loss of one eye is too great if the loss could have been prevented by proper precaution.

I repeat: If the surgeon can go into a cataract operation secure in the feeling that the patient cannot damage the eye by squeezing, it will help his morale and add to the steadiness of his hand.

M. M. CULLOM, M.D., Nashville, Tenn.

HISTORY OF BLOOD TRANSFUSION

To the Editor:—The article on "The History of Blood Transfusion" that appeared in the department of Miscellany (THE JOURNAL, Nov. 12, 1932, p. 1717) interested me considerably. May I point out an error which involves the discovery of the blood groups that appears in this article and also in the review by Zimmerman and Howell in the September issue of the *Annals of Medical History*, from which the article in THE JOURNAL is apparently concentrated.

On page 1719 appears the paragraph: "In 1900 Landsteiner (and, independently, Shattock) made the momentous discovery which was recently awarded the Nobel prize, namely, that human blood contains iso-agglutinins, capable of agglutinating other human red blood corpuscles, and that human blood is divided into three groups with regard to the agglutinating reactions. Decastello and Sturli (1902) added a fourth group. Hektoen (1907) was the first to point out the significance of iso-agglutinins in human blood transfusions, and their relations to the reactions and hitherto unexplained fatalities from the injection of human blood."

As a matter of fact, Shattock did not study iso-agglutination but rouleau formation, as may be seen by consulting his original paper (*J. Path. & Bact.* **6**:303, 1900). On page 311 of this paper, Shattock says: "The blood serum, however, stands very little dilution. If one drop of salt solution is mixed with one of the serum and to one drop of the mixture is added one drop of normal blood, the typical picture no longer presents itself, the hanging drop not being appreciably different from that of normal blood." (This tendency of rouleau formation, to disappear on slight dilution, was first observed by Shattock. True iso-agglutination can stand considerable dilution without any alteration of the reaction.) Furthermore, on page

312, Shattock writes: "The hanging drop of an equal admixture of typhoid blood serum and normal human blood showed throughout, when compared with a control made with normal human serum and normal human blood, a rouleau formation of exaggerated length and abnormally coarse mesh." Finally, on page 310, he writes: "What is the result if normal blood serum is added (1:1) to normal human blood? In this control no appreciable difference ensues from the picture presented by normal human blood; the rouleaux maintain a moderate length and construct a uniform and comparatively close net." The illustrations that appear in this article show rouleau formation. This question has been dealt with at some length by Hans Zinsser and A. F. Coca (Remarks Concerning Landsteiner's Discovery of Iso-Agglutination and the Blood Groups, *J. Immunol.* **20**:259 [April] 1931. Coca, A. F.: Note Concerning Differences Between the Clumping of Pseudo-Agglutination and Iso-Agglutination, *J. Immunol.* **20**:263 [April] 1931).

With reference to the application of blood grouping for blood transfusion, in the last sentence of Landsteiner's paper, "Ueber Agglutinationserscheinungen normalen menschlichen Blutes" *(Wien. klin. Wchnschr.,* 1901, p. 1132), he writes: "It may be stated further that the observations cited serve to explain the varying results of therapeutic transfusion of human blood" (Endlich sei noch erwähnt, dass die angeführten Beobachtungen die wechselnden Folgen therapeutischer Menschen Bluttransfusionen zu erklären gestatten). Apparently, no attention was paid to this suggestion until Hektoen in 1907 again suggested the possible application of blood grouping for transfusion.

ALEXANDER S. WIENER, M.D., Brooklyn.

PROPHYLAXIS AGAINST WAR

To the Editor:—It is encouraging to note, in your report of the International Conference on Medical Economics (THE JOURNAL, October 22, p. 1434), that the Dutch Medical Association has a Committee for Prophylaxis Against War. Your correspondent adds: "This is a new body which believes that the medical profession has a special mission in regard to the fight against war, using the parallel of the Red Cross."

In this connection it might be timely to recall that the first organized effort to enlist physicians in the cause of world comity was made through the Association Médicale Internationale pour Aider à la Suppression de la Guerre, founded in March, 1905, by that representative French colleague, Dr. Joseph Rivière of Paris. It was his aim, through fellow practitioners, to build up a strong, world-wide sentiment against conflicts between nations, and a widespread membership in this praiseworthy movement had been gained through his energetic leadership. Unfortunately, militarism and resultant nationalistic jealousies proved too powerful, so that the World War ended his altruistic efforts at the time.

Readers of THE JOURNAL will doubtless remember this genial French doctor, who, in the spring of 1927, visited North American cities from coast to coast and addressed medical meetings in the cause of world friendliness. It was at this time, marking his professional eminence and lifelong struggle for international fellowship, that he was made an honorary member of our national medical organization.

A. BERN HIRSH, M.D., New York.

PROPHYLAXIS OF PUERPERAL INFECTION

To the Editor:—The mere substitution of the jar for the pan, especially in hospitals, would save the lives of at least 90 per cent of the 8,000 women who die annually in the United States from puerperal infection. Fowler's position—drain and contraction—was the dictum of Polak.

HENRY FARRELL, M.D., McCook, Neb.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

AMENORRHEA

To the Editor:—A woman, aged 30, a virgin, well nourished, with no untoward symptoms of any sort that are disturbing her, had cessation of the menses about a year ago. The patient is a grade school teacher, height 67 inches (170 cm.), weight 150 pounds (68 Kg.), and has not suffered pains or any sort of inconvenience. Two years ago a normal menstrual period suddenly made its appearance twice a month, with no disturbance; it seemed to be perfectly normal, except for the occurrence twice in a month. There has been no increase in weight and no change in metabolism, the vegetative functions are normal, the thyroid is not palpable, the pulse is normal, the blood pressure is normal, and examination of the urine gives negative results. In fact, a careful gynecologic examination reveals all the uterine adnexa normal. Apparently there is nothing wrong save the menstrual close, which, of course, causes a woman of that age to be alarmed. On the theory that the case might be one of endocrine origin, she has had some glandular treatment with theelin. Kindly discuss this case with probabilities and with suggestions for treatment. I should like to know what might be expected in a case of this sort, which is an entirely new one to me. I might state that there is in the family history on the mother's side two or three cases of asthma. The patient's personal history is entirely negative; she has never been seriously ill. The first menstruation occurred when she was 14 years of age and was painless. Kindly omit name and address.

M.D., Oklahoma.

ANSWER.—Amenorrhea per se is not a condition about which there need be any alarm. Since the patient has no other symptoms of the menopause except perhaps slight overweight, and since examination reveals normal organs, she should be assured that she is practically in as good physical condition as are women who menstruate regularly. The patient should be impressed with this fact, because worry about the absence of the menses may be the only source of annoyance. However, should the woman in question marry, her chances for conception are distinctly less than are those of normally menstruating women. It would be worth while to perform Frank's test for the female sex hormone to see whether the patient has a periodic sex cycle.

Regardless of how much theelin is given, there will not be a return of a rhythmic menstrual cycle as a result of this. In fact, no single ovarian preparation thus far available has been found to be capable of making a woman menstruate. This is due to the physiology of menstruation. The ovary apparently produces more than one internal secretion necessary for the completion of the menstrual cycle. One arises in the follicle and is known as folliculin or theelin and brings about the stage of proliferation of the uterine endometrium. A second internal secretion, known as progestin, arises in the corpus luteum and acts only after ovulation, which generally takes place at about the middle of the intermenstrual period. This secretion causes the endometrium to progress from the proliferative stage to the secretory or progravid stage, which reaches its greatest development just before menstruation occurs. The first hormone alone, theelin or folliculin, is not capable of bringing about all the changes in the endometrium necessary for a complete monthly cycle. Even if bleeding should follow its administration, this is not true menstruation but a condition similar to the estrous bleeding seen in some of the lower animals. Furthermore, theelin has no effect on the ovaries. Its action is purely substitutional. Likewise, progestin, which as yet is not available commercially, has no action on the ovaries and is therefore also substitutional. Furthermore, progestin cannot act on the endometrium unless the latter has been prepared by theelin.

While it is true that menstrual bleeding is the result of the action of both theelin and progestin, these hormones in turn are under the control of the anterior lobe of the pituitary. This gland secrets two sex hormones. One of these is known as prolan A and is responsible for the maturation of ovarian follicles and the activation of theelin. The other hormone is known as prolan B and controls luteinization and the production of progestin.

The logical means, therefore, of attempting to bring about a return of menstruation is to give a patient large doses of theelin hypodermically for about two weeks and then follow this with injections of progestin. Since progestin is not being sold commercially as yet, it is necessary to substitute for it anterior pituitary luteinizing substances. By means of repeated use of these preparations some amenorrheic women, but by no means all, can be made to menstruate. However, since this therapy

is nearly always purely substitutional, the hypodermic medication will have to be repeated month after month, and such treatment does not seem worth while.

Some physicians have secured a return of the menses by administering "stimulating" doses of x-rays. This treatment should be given only by a competent roentgenologist and only if the patient shows a cycle by means of the female sex hormone test. Frank says that "permanent and irremediable amenorrhea has been induced by injudicious raying in patients whose ovarian function was at the time completely in abeyance." It must not be forgotten that in some cases there is a spontaneous return of the menstrual flow.

TREATMENT OF EARLY LOCOMOTOR ATAXIA IN WOMAN

To the Editor:—Will you kindly outline a course of treatment for early tabes in a woman, aged 33 and weighing 200 pounds (90 Kg.), who had a primary chancre thirteen years ago, with only seven or eight injections at that time—probably some arsphenamine. At present she shows lightning pains of both knees and two attacks of vomiting, one lasting four days and the other two days. She has Argyll Robertson pupils, diminished ankle and knee jerks, and diminished deep pain sense. There is no ataxia, incoordination or Romberg sign. The blood Wassermann reaction is 4 plus, Kahn negative. The spinal fluid Wassermann reaction is 2 plus, Kahn negative. A colloidal gold test was not made. Her physical condition is otherwise excellent, with no evidence of cardiovascular syphilis on examination. At present I am giving her neoarsphenamine, 0.6 Gm. intravenously, and bismuth in oil intramuscularly weekly, to both of which she has reacted very well. Would you advise following this with tryparsamide? If so, in what dosage and frequency? Or would you advise some other course of treatment? Please omit name.

M.D., New Jersey.

ANSWER.—Even men with large experience differ as to the best way of treating tabes. There are some who would use some form of fever therapy even in a rather mild case. In this instance it would seem best first of all to have the eyegrounds and visual fields tested; if there is no evidence of optic nerve disease, tryparsamide would be the best remedy. It is generally given intravenously once a week in series of eight injections, and an injection of mercuric salicylate may be given intramuscularly once a week. It is best to give only 2 Gm. of tryparsamide for the first two injections. If no untoward eye symptoms are produced, 3 Gm. may be given the rest of the time. It is customary to rest one month after the series of eight injections and then repeat the course over and over again.

NEOCAINE

To the Editor:—What is Neocaine, the French preparation? In some places I have read that it is procaine hydrobromide, in other places, hydrochloride. Is it Council accepted?

E. O. B., Illinois.

ANSWER.—One original package of Rachi-Néocaine Corbière (Laboratoires Pharmaceutiques Corbière, G. Auger, Pharmacien, 27 Rue Desrenaudes, Paris; Sole U. S. Agents, the Anglo-French Drug Company (U. S. A.), Inc., 1270 Broadway, New York) was submitted to the A. M. A. Chemical Laboratory for preliminary examination. The package contained twelve sealed ampules, each containing 0.2 Gm. of a clear, colorless, crystalline substance. Qualitative tests indicated the presence of procaine base (para-aminobenzoyl-diethylaminoethanol) and chloride. On thermal analysis the specimen was found to be identical with procaine hydrochloride U. S. P.; i. e., para-aminobenzoyl-diethylaminoethanol hydrochloride. Neocaine appears therefore to be the French proprietary name for procaine hydrochloride. The product has not been submitted to the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies. It does not therefore have the status of an accepted drug.

USE OF CALCIUM CHLORIDE TO PREVENT OOZING OF BLOOD AFTER TONSILLECTOMY

To the Editor:—Is the intravenous injection of calcium chloride of value in checking hemorrhage following tonsillectomy? I refer to giving it postoperatively. Please omit name.

M.D., Iowa.

ANSWER.—The intravenous injection of calcium chloride shortens the clotting time of the blood, so that it is of some value in lessening postoperative oozing. When, however, a good sized vessel is bleeding, the mere use of the calcium chloride is not sufficient. Finding the bleeding point and ligating it securely is perhaps the best method of controlling the hemorrhage. Some operators prefer application of pressure by means of gauze plugs either with or without the addition of some styptic.

DELAYED ORGASM

To the Editor:—A patient complains of having pathologically delayed orgasm during intercourse and sometimes he fails entirely when he is not at all depleted. It has been suggested to him that a circumcision would greatly facilitate and hasten orgasm. He has no phimosis and the prepuce is easily retracted, although it is rather long. His libido is normal or supernormal and he complains that he rarely gets complete relief from intercouse even though he is successful in having a climax. What are the effects of circumcision on this, and if not beneficial, what would you suggest? Please omit name.

M.D., Texas.

ANSWER.—Circumcision has no effect on this condition. The condition is due to a lack of sensitiveness, sometimes amounting to almost complete anesthesia, in the prostatic urethra. The opposite condition, namely, a hypersensitive prostatic urethra, is often the cause of rapid or premature orgasm. It has been proved experimentally that injection of a mild solution of cocaine into the prostatic urethra just before coitus will be followed by a lack of orgasm, although the rest of the coitus will occur normally. The treatment consists in increasing the sensitiveness of the prostatic urethra. This is best done by bringing heat to that part either through hot water through a psychrophore or through an electrically heated prostatic bougie.

LIPOIDOSIS CORNEAE

To the Editor:—I have a case of lipoidosis corneae and am desirous of getting any and all information found in the literature.

B. G. HOLTOM, M.D., Battle Creek, Mich.

ANSWER.—In view of the rarity of lipoidosis corneae, there has been but little in the literature. Lipoidal infiltration of the periphery of the cornea in the form of an arcus senilis is extremely common and under certain circumstances this may extend to involve a greater extent of the cornea than is commonly embraced in the term arcus senilis or arcus lipoides. A digest of the literature to date may be found in the fourth volume of the Kurzes Handbuch der Ophthalmologie, Schieck and Brückner, 1931, page 377.

BOWING OF LEGS IN RICKETS

To the Editor:—In cases of cured rickets but with residual bowing of the legs, what is the usual prognosis in regard to the bowing? Should braces be necessary or useful?

J. B. STOLL, M.D., Fontanelle, Iowa.

ANSWER.—In cases of cured rickets with residual bowing of the legs, the usual prognosis is good in regard to the bowing unless there is extreme deformity.

Braces are not necessary; in fact, they are not useful. The condition corrects itself in spite of the wearing of braces. However, the correction could be theoretically hastened if the braces were constantly altered to maintain pressure, but the patient will not wear braces with sufficient pressure to do any good.

Most of the residual deformity is false rather than real, in that there is usually relaxation of the knee joint, which disappears with conservative observation.

COPPER AND IRON MIXTURE FOR CHILDREN

To the Editor:—Please suggest a suitable combination of iron and copper in solution for use in the treatment of infants and children, noting the dosage of iron salt and of copper recommended for the body weight of the patient. Would either of the following be correct for a baby at 1 year to 2 years of age, with due regard for palatability and pharmaceutic compatibility?

℞ Cupri sulphatis.....gr. ⅕ Ferri et ammonii citratis.gr. x Syrupi aurantii.....♏ xv Aquae, q. s.....ad ʒ i M. Ft. sol. Sig.: One teaspoonful t. i. d.	℞ Cupri sulphatis.....gr. ⅕ Syr. ferri saccharati solubilis (N. F.).....ʒ ss Aquae, q. s.....ad ʒ i M. Ft. sol. Sig. One teaspoonful t. i. d.

For convenience, only one dose is here ordered. Please omit name.

M.D., New York.

ANSWER.—One could not speak of any exact dose relations of iron and copper per body weight of patient. The usual aim is to give the patient as much as will not derange digestion or produce any other unfavorable results.

The prescriptions submitted might possibly be improved as follows:

		Gm. or Cc.
℞	Copper sulphate	0.20
	Iron and ammonium citrate	2.00
	Syrup of orange	30.00
	Water.....to make	60.00

M. Label: Teaspoonful in water three times a day after feeding.

The dose of iron and ammonium citrate is unproportionately large. It would be entirely adequate for the adult and might easily produce gastric irritation in a small child.

The criticisms that might be advanced as to the second prescription would be, first, that the syrup of soluble saccharated iron is not generally kept in drug stores, though, of course, it can be procured; and, secondly, the addition of syrup of orange as a flavor might improve the palatability of the mixture.

The Council on Pharmacy and Chemistry has not accepted as positive the clinical evidence that the use of "copper-iron" preparations has advantage over the use of iron preparations alone.

INJECTION TREATMENT OF HEMORRHOIDS

To the Editor:—Please tell me whether the injection treatment of noncomplicated type of internal hemorrhoids with quinine and urea hydrochloride 5 per cent is a permanent cure or just a temporary relief. Please omit name.

M.D., Massachusetts.

ANSWER.—The injection treatment of uncomplicated internal hemorrhoids of moderate degree, in the absence of external hemorrhoids, anal fissures, fistulas or prolapse and edema of the internal hemorrhoids, gives excellent results in the hands of experienced workers. As a great number of patients who suffer from hemorrhoids also have constipation and some have anal contraction or spasm, treatment must also be directed against these important factors, as otherwise recurrences are reasonably certain. In patients requiring dilation of the anus, this can be done under sacral anesthesia, the internal hemorrhoids then being injected at one sitting. Daily enemas, injections of hamamelis water, N. F., into the rectum should be kept up for from ten days to two weeks. An anticonstipation diet is given and every effort made to combat the return of constipation. Under such management, cure is readily obtained unless another exciting factor, such as portal cirrhosis with ascites, is present. It is stated by most writers that the injection treatment of internal hemorrhoids, in the properly selected case, affords an even more permanent cure than surgical removal.

SIGNIFICANCE OF GOLD CHLORIDE CURVE

To the Editor:—On routine examination of a man, aged 39, a four plus Kolmer and Kahn test was obtained. He gave a history of a primary lesion at 19, followed by a short course of haphazard treatment. Examination otherwise is entirely negative, including normal pupillary reactions, knee jerks and Romberg sign. After eight intravenous injections of neoarsphenamine, up to 0.75 Gm., the spinal fluid was drawn. Report shows 1 cell per cubic millimeter, a faint trace of globulin, a negative Kolmer reaction and a gold chloride curve of 0112210000. The patient is now starting a ten weeks' course of mercury rubs, as recommended in the public health bulletin you recommend, "Treatment of Syphilis in General Practice." Since the gold chloride curve approximates the tabetic type and there is an absence of any signs of involvement of the central nervous system, please advise me how this would influence the subsequent treatment. The patient has agreed to follow through a program of two or three years of treatment and observation. Please omit name.

M.D., California.

ANSWER.—Gold chloride curves of this type are seen frequently in spinal fluids that have been positive and have reversed to negative under treatment, so in all probability the gold curve in the case cited is of no significance. Accordingly, the course of the subsequent treatment need not necessarily be modified, although a reexamination of the spinal fluid when treatment is completed is indicated.

HEREDITY IN EPILEPSY

To the Editor:—Will you kindly advise me as to the possibility of children having epilepsy whose maternal uncle developed typical idiopathic epilepsy during an acute nephritis with uremia. There is a questionable history of an attack at 14 and another at 20 years of age. Three years ago he had uremia, with convulsions. Though the uremia has disappeared, the convulsions persist at frequent intervals unless a ketogenic diet and the administration of phenobarbital are religiously followed. There is a moderate degree of mental impairment. A sister of the patient desires advice as to the possibility of her children, if any, having epilepsy. What is the present opinion as to epilepsy being a possible protein sensitivity? The patient consulting me is of a high degree of intelligence and has had no convulsions.

THEODORE A. KENNEDY, M.D., Washougal, Wash.

ANSWER.—A history of epilepsy or of some nervous disease in the family has been established in more than 50 per cent of the cases. The disease is usually at least one generation removed, thus occurring in uncles, aunts and cousins. It is assumed that the disease tendency is transmitted as a mendelian recessive. Given the inherited nervous system defect, another factor or other factors would be necessary to precipitate the seizures. Thus there is a possibility of the transmission of epilepsy in the family. Usually only one child in a family is affected. There is no satisfactory evidence that epilepsy is due to a protein sensitivity.

UREA NITROGEN AND NONPROTEIN NITROGEN

To the Editor:—In a case of suspected uremia in either sex, such as hypertension, with or without albuminuria in the male, or suspected uremia in a pregnant woman, or even preeclamptic symptoms, please state the relative diagnostic value as between the urea content and the total nonprotein nitrogen content in the same blood. From 25 to 35 mg. of nonprotein nitrogen per hundred cubic centimeters of blood is said to be the normal range; what is considered as being the normal figure or normal range of urea in the blood, expressed in milligrams per hundred cubic centimeters of blood, determinations being made in all instances before the patient has had breakfast? Please omit name.

M.D., Missouri.

ANSWER.—The urea nitrogen is normally about 50 per cent of the total nonprotein nitrogen of the blood. With impairment of kidney function, such as might result in uremia, the urea nitrogen may be relatively increased, even up to 75 per cent of the total nonprotein nitrogen. In normal pregnancy the values for both the total nonprotein nitrogen and the urea nitrogen are slightly lower than normal, but in true eclampsia the total nonprotein nitrogen is definitely increased, while the urea nitrogen may be normal, or subnormal to the extent that it makes up only 20 to 40 per cent of the total nonprotein nitrogen. The normal amount of urea nitrogen in the blood is usually given as between 12 and 15 mg. per hundred cubic centimeters.

IMMUNIZATION WITH DIPHTHERIA TOXOID OR TOXIN-ANTITOXIN

To the Editor:—In immunization for diphtheria I have recently been confronted with the problem of the proper time to start active immunization with either toxin-antitoxin or toxoid (anatoxin). I have been desirous of obtaining an active immunization as soon as possible, owing to the local prevalence of the disease, and in cases in which the usual prophylactic dose of antitoxin (1,000 units) has been given I have been undecided as to whether or not it would be immunologically sound to proceed at once with the use of the one or the other of the two methods for active immunization. Is it necessary or advisable to await the termination of the period of passive immunity conferred by the use of antitoxin?

JOHN F. DALY, M.D., Pawhuska, Okla.

ANSWER.—There seems to be no good reason why active immunization should not be started before the termination of the period of passive immunity.

TUBERCULOUS CHOROIDITIS OR VITREOUS OPACITIES

To the Editor:—Kindly give me your opinion of the treatment of choroiditis and vitreous opacities with ascending doses of tuberculin given twice a week subcutaneously; also any other suggestions for treatment for cases of this sort.

A. R. RIDDLE, M.D., Eagle Pass, Texas.

ANSWER.—If the choroiditis or vitreous opacities are tuberculous, the use of ascending doses of tuberculin yields better results than any other known therapy. First, the tuberculous etiology must be determined by the exclusion of other possible factors, by positive cutaneous reactions, and by clinical recognition. Second, active or latent foci in the lungs must be excluded by roentgenographic and physical examination to avoid the possibility of activating such foci by the use of the tuberculin. Third, such form of tuberculin must be used as the physician is familiar with and whose potential danger he recognizes. Fourth, the cure must be started with infinitesimally small doses, preferably one one-hundred thousandth of a milligram, and increased cautiously. The injections should be given once every five to seven days rather than twice weekly, and any focal reaction must be avoided. Other treatment of the condition should be purely symptomatic.

GIANT CELL TUMORS—PARATHYROID FUNCTION—MULTIPLE MYELOMA

To the Editor:—1. How is giant cell tumor (sarcoma) related to the parathyroids? 2. Is there any known relationship between parathyroid dysfunction and multiple myelomas? 3. Is Bence-Jones protein always present in myeloma? 4. What is the best form of therapy for multiple myelomas of the skull and vertebrae? 5. What is the average duration of life in this condition? Please omit name.

M.D., New York.

ANSWER.—1. Multiple giant cell tumors and multiple osteitis fibrosa are associated with a metabolic disturbance in which there is elevation of blood calcium. Recent studies have demon-

strated that the underlying cause of this state is hyperparathyroidism. In many examples, removal of the parathyroid tumor has resulted in a disappearance of the bone lesions and return of the blood calcium to normal.

2. There is no known relation between parathyroid dysfunction and multiple myelomas.

3. Bence-Jones protein is found in the urine of approximately 65 per cent of patients suffering from multiple myeloma.

4. X-rays and radium have a tendency to control pain and accelerate the healing of pathologic fractures.

5. The average duration of life in multiple myeloma is approximately two years.

TONSILS AND HYPOTHYROIDISM

To the Editor:—I am taking the liberty of writing you regarding a question that has come up in my practice. A boy, aged 6 years, has had a definite thyroid deficiency since birth. Mentally and physically he is abnormal. He has had tonsils and I should like to know the opinion of some one who has seen a number of cases of this type as to the advisability and risk of general anesthesia and removal of the tonsils. He has taken thyroid extract in varying amounts since infancy and his pulse is rarely under 120. M.D., Georgia.

ANSWER.—In thyroid deficiency a characteristic myxedematous swelling occurs in the skin, tongue and pharynx, and it has been assumed that the hyperplasia of the tonsils and other lymphatic tissue of the pharynx is of the same character.

One finds statements in the literature that the lymphatic structures of the pharynx hypertrophy and perform a secretory function in deficiency of the thyroid gland. There is not the slightest proof that these lymphatic structures take on secretory function. But the observation that tonsils and adenoids tend to enlarge in hypothyroidism cannot be disputed. This fact leads to the conclusion that removal of the tonsils under these circumstances would not improve the general condition or affect the basic cause of the disorder.

It is interesting to quote from Dr. John Fraser, in the second volume of Surgery of Childhood (p. 662): "There is danger in submitting the subjects of hypothyroidism in any form to surgical interference; they stand operation exceedingly badly and surgical manipulation under anesthesia is inadvisable."

BLOOD SUGAR CURVE IN DIABETES

To the Editor:—I have a patient suffering from diabetes mellitus whom I have seen three times in coma. The last time I gave her 420 units of insulin with dextrose intravenously within twenty hours before I was able to bring her out of the coma. This woman, at present stabilized, is getting 37 units of insulin daily in two doses. Her blood sugar is 220 mg. and I am unable to reduce it below this point. If I increase the insulin 2 or 3 units at one of these daily doses, the patient presents symptoms of hypoglycemia. Could a blood sugar of 220, taken in the morning on a fasting stomach, be considered normal? If not is there any way that this can be reduced? The patient feels fine otherwise, maintains her weight, drives a car and is able in other ways to perform all her work. Please omit name. M.D., New York.

ANSWER.—It must be recalled that, when insulin is being given, the highest blood sugar of the day is apt to be in the morning before breakfast, whereas in cases in which insulin is not being given the morning blood sugar usually is lowest. Therefore, in this case the important factor would be to ascertain what the blood sugar curve during the day is at various times after the injection of insulin. Whereas a blood sugar of 220 mg. in the morning cannot be considered normal, it is frequently the better part of therapeutic wisdom not to attempt to reduce this blood sugar too low, and from the description of this case it would seem that an optimal therapeutic result is being obtained by the present method of therapy.

DIAGNOSIS OF MASS IN BREAST

To the Editor:—Following a normal delivery my wife, fourteen days later, developed a round, firm mass in the right breast just beyond the areolar margin. This mass was painful, warm but not fluctuant. It could be moved freely and was apparently not firmly attached to the skin or subcutaneous tissue. Lactation was generally poor and insufficient. The right breast was the less efficient of the two. Nursing was stopped at the end of two weeks. The mass at present (two months from delivery) is the size of a walnut, about one fourth of its maximum size. It is not painful. What can be done to eliminate this mass? What relation, if any, has this type of tumor to the future development of cancer of the breast? The patient is 27 years old. Please omit name. M.D., Pennsylvania.

ANSWER.—The most likely diagnosis is galactocele or abscess. The fact that the mass has diminished in size is further evidence that the lesion is more likely inflammatory than neoplastic. If the mass is still present after two months and is not showing signs of rapid disappearance, surgical excision is the wisest and safest procedure to adopt. If the lesion proves to be galactocele or abscess, there is no evidence that these conditions have any relation to cancer of the breast. There is a remote possibility that the lesion is a fibro-adenoma. Transillumination of the breast might be an aid in the diagnosis.

TIC DOULOUREUX

To the Editor:—I have a patient, a married woman, aged 51, who has been suffering with spasmodic neuralgia of the face—tic douloureux—for several years. The history is negative except for the presence of eczema on both arms near the elbow for the past fifteen years or longer and attacks of headache, especially just before menstruation. Menstruation has practically ceased, though it has appeared three or four times during the past twelve months, the last time two months ago. The neuralgic attacks come on suddenly and last for a few minutes, whereupon they ease off. The pain is almost unbearable at times. Sometimes she will go for weeks or even longer without attacks; then they come on regularly for days at a time. Can you suggest any relief, even temporary, from the attacks, other than resection or nerve blocking? Please omit name. M.D., Mississippi.

ANSWER.—If this is true tic douloureux, a spasmodic unilateral pain, limited to the distribution of the trigeminal nerve, it is unnecessary to let the patient suffer any longer. If the patient never has had an alcohol injection, this may be used first. When the pain returns, as it probably will in a year or more, it will be time to decide whether to inject again or have a neurologic surgeon section the sensory root of the fifth nerve. This operation is so safe and satisfactory in the hands of the special surgeon that there is no longer any excuse for withholding it from the patient except that many surgeons prefer to let the patients have one experience with alcoholic injection so as to get used to the numbness produced. Temporary relief is sometimes obtained from the inhalation of trichlorethylene, twenty-five drops on a handkerchief, three or four times a day.

HERPES PROGENITALIS

To the Editor:—Can you tell me a curative treatment for recurrent herpes progenitalis? Please omit name and city. M.D., New York.

ANSWER.—Herpes progenitalis is frequently due to secretions that accumulate under the prepuce. These cases are usually cleared up by circumcision. In circumcised individuals the use of green soap and water each morning, followed by applications of a drying powder such as aristol powder, will usually prevent recurrence.

IRRITATION OF EYES FROM BOTTLED GASES

To the Editor:—A patient recently told me that her eyes have been bothering her (burning and bloodshot appearance) since she has been using Phil-gas for cooking. She says that the neighbors also complain of the same condition when they come into the kitchen. Her neighbors use Pyro fax for cooking and do not experience any difficulty in their own homes. My patient does not experience any difficulty when she goes into the kitchen of her neighbors and did not have any difficulty last year when she was using gas from the regular mains. Have you heard of any similar complaints or do you know what irritating gases give off? WENDELL L. HUGHES, M.D., New York.

ANSWER.—All the bottled gases are similar in their chemical composition, some being natural products and the others synthetic saturated hydrocarbons, such as propane. In the majority of the gases there is a slight trace of butane, which cannot be eliminated. On combustion the gaseous products are water vapor, carbon monoxide (from 0 to 5 per cent), and carbon dioxide (from 0 to 12 per cent). The relative percentages depend on the completeness of combustion. Under some conditions that are almost impossible with an open flame burner, formaldehyde may be produced. Apart from the latter, none of the other gaseous products of combustion should cause the ocular irritation referred to. The probability is that impurities have crept into the gas and that incomplete combustion has allowed of their distribution throughout the room in gaseous form.

LOCAL USE OF OIL OF MUSTARD

To the Editor:—In what strength may oil of mustard be used (in petrolatum) for local application to the skin? Please omit name. M.D., Pennsylvania.

ANSWER.—The mustard ointment of the National Formulary contains 2 per cent of volatile oil of mustard, which might be considered average strength.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALASKA: Juneau, March 14. Sec., Dr. Harry C. DeVighne, Juneau.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Milwaukee, June 12. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: The *written* examination will be given in cities of the United States and Canada where there is a Diplomate who may be empowered to conduct the examination, April 1. The *general oral, clinical and pathological* examination will be held in Milwaukee, June 13. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Milwaukee, June 12. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

CALIFORNIA: Los Angeles, Feb. 27 to March 2. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Basic Science.* New Haven, Feb. 11. Prerequisite to license examination. Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examination will be held in centers where there are five or more candidates, Feb. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEVADA: *Reciprocity.* Carson City, Feb. 6. Sec., Dr. Edward E. Hamer, Carson City.

NEW YORK: Albany, Buffalo, New York, Syracuse, Jan. 30–Feb. 2. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315, State Education Bldg., Albany.

PUERTO RICO: San Juan, March 7. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

VERMONT: Burlington, Feb. 15-17. Sec., Dr. W. Scott Nay, Underhill.

WYOMING: Cheyenne, Feb. 6. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

California July Examination at San Francisco

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held at San Francisco, July 12-14, 1932. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. One hundred and twenty-four candidates were examined, 115 of whom passed and 9 failed. The following colleges were represented:

College	PASSED	Year Grad.	Number Passed
College of Medical Evangelists		(1932, 11)	11
Stanford University School of Medicine		(1930, 2), (1932, 27)	29
University of California Medical School		(1931), (1932, 43)	44
University of Colorado School of Medicine		(1932)	1
Loyola University School of Medicine		(1932)	1
Northwestern University Medical School		(1932, 4)	4
Rush Medical College		(1932, 3)	3
State Univ. of Iowa College of Med.		(1922), (1929), (1931)	3
University of Kansas School of Medicine		(1931)	1
Johns Hopkins University School of Medicine		(1929), (1931)	2
Boston University School of Medicine		(1931)	1
Harvard University Medical School		(1929), (1931)	2
University of Minnesota Medical School		(1931)	1
Washington University School of Medicine		(1931, 2), (1932)	3
Creighton University School of Medicine		(1932, 4)	4
University of Nebraska College of Medicine		(1931)	1
University of Oregon Medical School		(1931)	1
Hahnemann Medical Coll. and Hosp. of Philadelphia		(1932)	1
University of Pennsylvania School of Medicine		(1931)	1
Queen's University Faculty of Medicine, Ireland		(1915)*	1

College	FAILED	Year Grad.	Number Failed
University of California Medical School		(1932, 2)	2
Creighton University School of Medicine		(1932, 2)	2
Vanderbilt University School of Medicine		(1931)	1
Karl-Franzens-Universität Med. Fakultät, Austria		(1928)	1
Moscow State University Faculty of Medicine		(1919)†	1
Psycho-Neurological Institute Medical College, Russia		(1917)†	1
University of Tomsk Faculty of Medicine		(1913)	1

* Certificate not as yet issued.

† Verification of graduation in process.

California July Examination at Los Angeles

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held at Los Angeles, July 25-28, 1932. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Eighty-four candidates were examined, 75 of whom passed and 9 failed. The following colleges were represented:

College	PASSED	Year Grad.	Number Passed
College of Medical Evangelists		(1928), (1931), (1932, 40)	42
Stanford University School of Medicine		(1932, 5)	5
University of California Medical School		(1932)	1
University of Colorado School of Medicine		(1931)	1
Emory University School of Medicine		(1931)	1
Loyola University School of Medicine		(1932, 2)	2
Northwestern University Medical School		(1928), (1932)	2
Rush Medical College		(1932, 6)	6
University of Illinois College of Medicine		(1932)	1
Indiana University School of Medicine		(1931)	1
University of Kansas School of Medicine		(1931, 2)	2
Harvard University Medical School		(1932)	1
University of Michigan Medical School		(1931, 3)	3
University of Minnesota Medical School		(1932)*	1
St. Louis University School of Medicine		(1931)	1
Creighton University School of Medicine		(1931), (1932, 2)	3
Hahnemann Medical Coll. and Hosp. of Philadelphia		(1931)	1
McGill University Faculty of Medicine		(1931)	1

College	FAILED	Year Grad.	Number Failed
College of Physicians and Surgeons, Arkansas		(1910)	1
College of Medical Evangelists		(1932, 2)	2
Loyola University Medical School		(1925)	1
University of Illinois College of Medicine		(1931)	1
Medical College of Virginia		(1931)	1
Medizinische Fakultät der Universität, Wien		(1930)	1
Regia Università di Roma degli studi Facoltà di Medicina e Chirurgia		(1902)†	1
Universitatea din Bucureşti Facultatea de Medicină		(1921)†	1

Dr. Pinkham also reports 4 physicians licensed by endorsement on June 16 and 23. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College		(1911)	U. S. Army
University of Illinois College of Medicine		(1930)	U. S. Navy
University of Minnesota Medical School		(1921)	U. S. Navy
University of Buffalo School of Medicine		(1900)	U. S. Army

* This applicant has received an M.B. degree and will receive an M.D. degree on completion of an internship.

† Verification of graduation in process.

Michigan June Examination

Dr. Nelson McLaughlin, secretary, Michigan State Board of Registration in Medicine, reports the written examination held at Ann Arbor and Detroit, June 7-9, 1932. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Two hundred and two candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1931)	82.6
Yale University School of Medicine	(1930) 82.7,	(1931)	83.6
Emory University School of Medicine		(1931)	84.3, 85.7
Northwestern University Medical School		(1931)	85.3,
	(1932) 83.7, 86.6		
Rush Medical College	(1932) 81.8, 83.9, 84, 84.9, 85.2,*		85.3, 85.8
School of Med. of the Division of Biological Sciences, University of Chicago		(1931) 82.5, (1932)	83.3
University of Illinois College of Medicine		(1932)	83.3
Johns Hopkins University School of Medicine		(1931)	84.4
Harvard University Medical School		(1929)	82.1,
	(1930) 83.7, 86, (1931) 82.7		
Detroit College of Medicine and Surgery		(1932)	85.1,
	(1932)† 79.5, 80.6, 80.8, 80.8, 81.2, 81.7, 81.7, 82.1, 82.2, 82.2, 82.3, 82.5, 82.5, 82.6, 82.8, 82.8, 82.9, 83, 83, 83.2, 83.2, 83.3, 83.5, 83.6, 83.7, 83.8, 83.9, 83.9, 83.9, 84.1, 84.2, 84.3, 84.4, 84.5, 84.5, 84.6, 84.8, 84.9, 84.9, 85, 85, 85, 85, 85.2, 85.2, 85.3, 85.4, 85.6, 85.6, 85.6, 85.7, 85.7, 85.7, 86.3, 86.3, 86.4, 86.4, 87.4		
University of Michigan Medical School		(1930)	84.4,
	(1931) 82.7, (1932) 80.2, 80.9, 81.2, 81.8, 82, 82, 82, 82.3, 82.3, 82.4, 82.4, 82.4, 82.5, 82.6, 82.8, 82.9, 82.9, 83, 83, 83, 83.1, 83.1, 83.1, 83.3, 83.3, 83.3, 83.4, 83.4, 83.5, 83.5, 83.5, 83.5, 83.6, 83.6, 83.6, 83.7, 83.7, 83.7, 83.7, 83.8, 83.8, 83.9, 83.9, 84.1, 84.2, 84.2, 84.2, 84.2, 84.2, 84.3, 84.3, 84.3, 84.3, 84.4, 84.4, 84.5, 84.5, 84.6, 84.6, 84.7, 84.7, 84.9, 84.9, 84.9, 84.9, 85, 85.1, 85.1, 85.1, 85.1, 85.2, 85.2, 85.3, 85.3, 85.3, 85.4, 85.4, 85.5, 85.5, 85.5, 85.5, 85.5, 85.5, 85.6, 85.6, 85.7, 85.7, 85.7, 85.8, 85.8, 85.9, 86, 86, 86.2, 86.5, 86.5, 86.5, 86.7, 86.7, 86.8, 86.9, 87, 87, 87, 87.1, 87.1, 87.3, 87.3		
University of Minnesota Medical School		(1932)	85.5
University of Pittsburgh School of Medicine		(1914)	80.7
Marquette University School of Medicine		(1932)	83.9
University of Alberta Faculty of Medicine		(1931)	85.7
Trinity Medical College, Toronto		(1899)	82
University of Toronto Faculty of Medicine		(1931) 81.6,	85.1
University of Western Ontario Medical School		(1932)	82.3
Universidad de la Habana Facultad de Medicina y Farmacia		(1929)	82.7‡
Kongelige Frederiks Universitets Medisinske Fakultet, Norway		(1930)	81.4

* This applicant has received a four-year certificate and will receive a Michigan license and an M.D. degree on completion of an internship.

† These applicants have received an M.B. degree and will receive a Michigan license and M. D. degree on completion of an internship.

‡ Verification of graduation in process.

Connecticut Homeopathic Report

Dr. Edwin C. M. Hall, secretary, Connecticut Homeopathic Medical Examining Board, reports the written examination held in New Haven, July 12, 1932. The examination covered 7 subjects and included 70 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. The following college was represented:

College	PASSED	Year Grad.	Per Cent
New York Homeopathic Med. Coll. and Flower Hosp.		(1932)	85

Book Notices

Treatment of Syphilis. By Jay F. Schamberg, A.B., M.D., Professor of Dermatology and Syphilology in the Graduate School of Medicine of the University of Pennsylvania, and Carroll S. Wright, B.Sc., M.D., Professor of Dermatology and Syphilology in the Temple University School of Medicine. Cloth. Price, $8. Pp. 658, with 62 illustrations. New York & London: D. Appleton & Company, 1932.

During the quarter century that has elapsed since Ehrlich recommended arsphenamine, the medical literature has become voluminous with regard to the arsenical preparations and their derivatives and substitutes. Schamberg and Wright have gathered together from the literature of this country and Europe the experiences of able syphilologists, and by adding their own experiences have created this book on syphilotherapy. Such a compilation of factorial data is not only highly commendable but particularly appropriate at this time. The book consists of thirty-three chapters, of which seven are devoted to mercury, two to bismuth, and twelve to the arsenobenzenes, including the complications and chemotherapy of the drugs. The rest of the book is devoted to the treatment of the different phases of syphilis, with particular attention to the various types of fever treatment. Illustrations are not too numerous, and the reading is made easier by the omission of many cumbersome charts and graphs. Several of the illustrations of the techic employed by the authors are subject to criticism; the technic for the intravenous injection of arsphenamine appears awkward, and the method of guiding the needle with the fingers when doing a spinal fluid tap is far from a good example of an aseptic surgical procedure. In several chapters the references have not been brought down to date, and it would appear that these chapters were completed several years ago. The opinions of syphilologists of broad experience are offered, together with those of the authors, in a manner that permits the reader to grasp easily the prevailing concept of a drug or system of treatment. The parts of the book dealing with the complications of treatment and measures to control them are well done. To the practitioner who treats syphilis occasionally, easy access is given to the various systems of treatment now employed in the different phases of syphilis and its complications. The value of the arsenobenzenes is upheld, and rightfully so, wherever assailed. The authors' concept of the treatment of patients with latent and Wassermann fast syphilis is especially noteworthy. When the supply of arsphenamine became exhausted in this country during the recent war, Schamberg gathered together a group of workers and started to manufacture it, thus relieving a situation which had assumed serious public health aspects. In commending this book on the treatment of syphilis to the student, general practitioner and syphilologist, the occasion is also taken to express to the senior author appreciation of his efforts in establishing in this country the synthesis of the arsphenamines.

Tuberkulose und Umwelt. Von Stadtmedizinalrat Dr. med. Gustav Hoch, Leiter des Stadtgesundheitsamtes Meissen. Nr. 47, Tuberkulose-Bibliothek, Beihefte zur Zeitschrift für Tuberkulose. Herausgegeben von Prof. Dr. Lydia Rabinowitsch. Paper. Price, 3.50 marks. Pp. 35, with 1 illustration. Leipzig: Johann Ambrosius Barth, 1932.

The author has accumulated valuable statistics on the relation of environment to tuberculosis mortality. Such environment is considered as internal and external. The former has to do with psychic, mental and physical influences. For example, the abuses of pleasure, sex and drinking are unfavorable, while the advantages of a highly ordered mind and well developed body are among the beneficial factors. The external factors include housing, weather, climate and occupation, with all their variations. General conditions are given first, then a special and thorough statistical study of such factors in the small city of Meissen has been made. Among general conditions the author cites figures to show that hot climates, low altitudes and moist atmospheres are more unfavorable than their opposites, although some of these statistics are admittedly objectionable. More important are financial and social conditions, which affect tuberculosis according to the position on their respective scales. Age is a factor. Immunity through previous infection affords limited protection only under other favorable conditions. Industrialization has a certain and far reaching effect, but care must be used in interpretation of associated factors. A generation ago, country places had tuberculosis death rates higher than the cities, owing to long working hours, unhygienic surroundings, ignorance of public health and the eating of poor food; but since then the improvement of their lot and the tremendous increase of industrialization in certain cities has tended to equalize them more.

The specific studies of the small city of Meissen (on the upper Elbe) constitute one of the most thorough analyses available of the relationship of the environmental factors of a small industrial community to tuberculosis. The author shows how the war brought on a shortage of buildings with resulting crowding and congestion (59.78 per cent from 1926 to 1929); how the old type of architecture in certain parts of the city caused unhygienic conditions, poor ventilation, a lack of sunlight, and increased moisture; how a tremendous increase in unemployment resulted in insufficient nourishment for about 70 per cent of the population, with attendant increase in the tuberculosis death rate in 1931; how a moisture laden and cloudy atmosphere in enclosed valleys probably caused an increase in tuberculosis in newer parts of the city (Elbtal).

The industries appear to affect the tuberculosis death rate in a few principal ways, depending on the constitution of the individual (young and weakly men and overworked women in the textile industries); lower wages resulting in less leisure, health education, proper food and living conditions; and silica dust and heat in the air, producing silicosis, which nearly always becomes complicated with tuberculosis. The silicosis appeared in proportion to the silica dust with which the worker came in contact. The fire brick workers come first; then metal workers, the list being led by the sandblasters in the smelters; then, in the order of their being affected, are factory, porcelain and business workers, and officials. The porcelain workers had a relatively high silicosis but their higher pay helped them ward off tuberculosis more than some of other less profitable occupations.

The author points out certain discrepancies in the statistics; for example, the people "without occupation" had a high death rate from tuberculosis, but this group contained many housewives whose occupation before marriage was textile work. On the whole, however, his figures are clear cut, convincing and in general compatible with other modern opinion.

Essentials of Pathology. By C. Russell Salsbury, M.D., C.M., Professor of Anatomy, University of Oklahoma. Cloth. Price, $2. Pp. 270, with 10 illustrations. New York: Macmillan Company, 1932.

This was written primarily as a textbook for nurses for courses in pathology. The contents consist largely of brief considerations of the general principles of pathology and in a similar brief way of the underlying pathologic changes of specific diseases as well as the special pathology of the various systems of the body. The last chapter is devoted to a brief discussion of the indications and interpretations of the common laboratory procedures. The style is simple and clear, but for purposes of teaching in many schools the sections on general pathology are altogether too brief. Perhaps for the average school of nursing this book may answer the purpose, but the recent rapid improvements in standards and requirements in many schools of nursing will demand a more comprehensive textbook on pathology. One worthy feature of the portion on special pathology is the clinical correlation between the tissue changes and the symptomatology. The volume is suggested as a concise textbook for medical students but is entirely inadequate and should not be encouraged in the present medical curriculum, in view of the many excellent textbooks now available.

Kleine Chirurgie. Von Professor Dr. Hans Kurtzahn. Second edition. Paper. Price, 13.50 marks. Pp. 463, with 167 illustrations. Berlin: Urban & Schwarzenberg, 1932.

This edition, published three years after the first, is evidence of the popularity of the book abroad. Although one would scarcely class as minor operations some of the operative procedures described in the chapter on tumors, they cannot be classed as major. On the whole, the author has confined himself closely to the limits of minor surgery and has clearly set forth the established procedures which the general practitioner may use in almost any emergency he may encounter. It seems strange that he relegates nitrous oxide anesthesia to the clinic and still goes into great detail about ether and chloroform. He has given in detail the differential diagnosis of most of the more common pathologic lesions, such as chronic inflammations and

tumors of the surfaces of the body. In criticism, one might complain that there is no bibliography and little discussion of the relative merits of various methods of therapy. Some methods of questionable value are stated authoritatively. A unique chapter dealing with the treatment of industrial cases, particularly with the mental attitude of such patients, is excellent. Such a chapter might well be added to similar English textbooks. The paper is excellent, thereby enhancing the value of the many well selected illustrations taken from photographs and drawings.

Medical Entomology. By Robert Matheson, Ph.D., Professor of Entomology, New York State College of Agriculture, Cornell University. Cloth. Price, $5. Pp. 489, with 211 illustrations. Springfield, Ill.: Charles C. Thomas, 1932.

In his preface the author states that the present volume is an introductory textbook offered to the physician, the entomologist, the public health worker, the student and the layman, both that it may inform and that it may arouse a keener interest in the problems of insect-borne diseases. There are twenty chapters, of which the first is a general and historical account of arthropods and human disease and the last is devoted to methods of collecting, preserving and mounting insects. The remaining chapters consider each of the groups of insects and related arthropods that are of medical importance. Under each group can be found an outline of the characteristics and habits, anatomy, classification, relation to disease and control. In doing this the author has reached a nice balance in the allocation of space. Thus, in the case of mosquitoes, there is a chapter on the more purely entomological consideration of the Culicidæ, another on the relation of mosquitoes to human disease, and a third on the problem of mosquito reduction. There is also a special chapter on poisonous and urticating arthropods. The author has condensed within the space of a comparatively small book an enormous amount of accurate and authoritative information. Most of the criticisms that can be raised are matters of opinion and apply to the omission of details. Thus, the chapter on mosquito control gives an admirable summary of actual control methods but might be of more practical value if more attention had been paid to the difficult question of ascertaining the important malaria carrier of a district prior to "species control." The volume is well illustrated and indexed and will find a welcome place among the several recent works on medical entomology that have appeared.

Krebsverbreitung, Krebsbekämpfung, Krebsverhütung. Von Erwin Liek. Paper. Price, 5 marks. Pp. 252. Munich: J. F. Lehmann, 1932.

This popular work on cancer follows, on the whole, conventional lines, discussing statistics, therapy, causes and, finally, protective measures. A great deal of material has been collected and analyzed, but the author has not been sufficiently critical in the selection of his material for discussion and the tone is somewhat emotional. He makes the point that the complete realization of the phrase "early diagnosis and prompt operation on cancer" is not synonymous with a cure; but even though uncritical, the book contains a sufficiently large amount of information to be of interest to the expert who is capable of drawing his own conclusions.

Science in Action: A Sketch of the Value of Scientific Research in American Industries. By Edward R. Weidlein and William A. Hamor, Mellon Institute of Industrial Research, Pittsburgh. Cloth. Price, $3. Pp. 310, with 33 illustrations. New York and London: McGraw-Hill Book Company, Inc., 1931.

This is a readable account of the exploits of research and especially of industrial research. The facts are interesting and have a definite place in the repertory of subjects about which the well informed man talks. It would seem that at times the subject is viewed through rose colored glasses, as only the successes are discussed. The authors might have obtained more information before discussing new pharmaceutic preparations. They have singled out one of a series of marketed barbituric acid hypnotics and stated that it gives equivalent results when used in smaller doses than required by other sleep-producing drugs. This is not an adequate statement, clinically or chemically. There are literally hundreds of hypnotics of the same series about which little is known. Neither the work of the Council on Pharmacy and Chemistry nor the work of the A. M. A. Chemical Laboratory is mentioned in connection with the discussion on new remedies. Although the authors are officers of the Mellon Institute of Industrial Research, this institution is not given undue publicity in the book. On the whole, the book is to be commended.

Lærebog I: Menneskets Arvelighedsforhold udarbejdet til Brug for Læger og medicinsk Studerende. Af Oluf Thomsen, Dr. Med. Prof. V. Universitetet. Paper. Pp. 239, with 42 illustrations. Copenhagen: Levin & Munksgaard, 1932.

The author is a prolific writer. Only recently a textbook by him on infectious pathology and related subjects was published. The present textbook on heredity is intended especially for medical students and physicians. Hereditary tendencies are of such significance in medicine that the physician simply must be acquainted with the fundamental laws of heredity and its manifestations in the realm of disease. All teaching of heredity has changed completely since 1900, when Mendel's epochal work became known generally. The first part of the book is devoted to the explanation of the mendelian laws. The presentation is clear and simple. The second part treats briefly with the human aspects of heredity. Hereditary hemophilia should have been included in the index. The book fulfils its purpose satisfactorily.

A Pocket Guide to Medical Life Assurance. By Jehangir J. Cursetji, M.D., L.R.C.P., L.R.C.S., Chief Medical Officer, the Oriental Life Assurance Co., Ltd., Third edition. Boards. Pp. 274. Bombay: Union Press, 1932.

This is a concise but thorough exposition of the methods and problems of life insurance from the medical standpoint, written largely from the point of view of the chief examiner at the home office or the medical referee when dispute has arisen. The author exhibits a tendency to accept too many applicants who are second class risks through "rating up" the premium, by arbitrarily raising the age of the applicant. The type of careful methodical examination stressed in this volume, together with a painstaking personal and family history, is of course ideal but is on a much higher plane than that performed by the ordinary medical examiner. Much could be said about the inadequacy of the customary fee for life insurance examination in this connection.

Radiologia clinica da vesicula biliar normal e pathologica pela cholecystographia. Por Saint Pastous. Trabalho do Instituto de Radiologia Dr. Saint Pastous em Porto Alegre. Paper. Pp. 171, with illustrations. Porto Alegre, Brasil: Livraria do Globo, 1929.

This monograph on cholecystography is chiefly a summary of the work of Graham, Cole, Copher and Moore, with a discussion of some of the other literature. The author's own experience with 140 cases is given. Since the book is written in Portuguese it will probably not find many American readers. The author agrees with all other writers on the subject that the method is of great value in the diagnosis of various disorders of the gallbladder.

Epidemiology, Historical and Experimental. The Herter Lectures for 1931. By Major Greenwood, F.R.S., The University of London. Cloth. Price, $1.50. Pp. 80, with illustrations. Baltimore: Johns Hopkins Press; London: Oxford University Press, 1932.

The three lectures delivered at Johns Hopkins University in 1931 by Major Greenwood are here reprinted in attractive form. They consist chiefly of pleasant, if somewhat discursive, historical discussions and a more specific attempt to appraise the "experimental epidemiology" of Webster, of Topley and of Greenwood himself. This work is dealt with clearly and candidly. There will be few to quarrel with the author's conclusions in his closing paragraph: "In the biological experimentation I have described there can be no crucial experiments; reasoning must be stochastic, inferences no more than probable."

Lehrbuch der Urologie mit Einschluss der männlichen Sexualerkrankungen. Von Dr. Leopold Casper, a. ö. Professor a. d. Universität Berlin. Fifth edition. Paper. Price, 35 marks. Pp. 486, with 170 illustrations. Berlin: Urban & Schwarzenberg, 1932.

This textbook comes up to the standard to be expected from an author known as an experienced clinician and a renowned writer on urology. A certain unevenness in discussing the various topics may be ascribed to the author's attempt at covering in a rather limited space the enormous field indicated in the title. It is to be regretted that there is rather scanty attention allotted to the pertinent American literature, though in this country the development of modern urology has progressed in amazing strides. This omission may account for

some striking deficiencies, such as dismissing with a few words urethral strictures in the female and the failure of mentioning the Hagner operation and protein therapy in treating acute epididymitis. The same neglect is apparent in the discussion of open electrocoagulation of malignant vesical tumors and transurethral electroresection in certain instances of prostatic hypertrophy. An innovation is the special chapter devoted to a concise discussion of the so-called medical kidney diseases.

Medicolegal

Award of Compensation as Bar to Malpractice Suit

(Cooke v. Bunten (Kan.), 11 P. (2d) 1016)

Cooke was paid compensation under the Kansas compensation act for an industrial accident in which the bones in his left elbow and in the fourth finger of his left hand were fractured. Thereafter he instituted an action for damages for malpractice against the defendant-physician, who treated him when he was injured. He alleged that through the defendant's negligent treatment his elbow had become stiff permanently and that he had lost the use of his fourth finger. In his answer the defendant set up, among other matters, the recovery of workmen's compensation by the plaintiff, as a bar to this action. The trial court sustained a demurrer to the answer and the defendant appealed to the Supreme Court of Kansas.

The defendant contended that an aggravation of an injury due to an industrial accident, occasioned by the negligence of a physician in treating the injury, is a part of the original injury; that an award of compensation under the workmen's compensation act includes compensation for both the industrial injury and its aggravation; and that no separate action can be maintained against the physician for the recovery of additional damages for the aggravation. Notwithstanding the fact, said the Supreme Court of Kansas, that the contention of the defendant is in accord with the rule announced by the courts of many jurisdictions, that rule does not prevail in Kansas. In *Ruth* v. *Witherspoon-Englar Co.*, 98 Kan. 179, 157 P. 403, the Supreme Court of Kansas held that:

> So much of an employee's incapacity as is the direct result of unskillful medical treatment does not arise "out of and in the course of his employment" with the meaning of that phrase as used in the statute. Laws 1911, c. 218, sec. 1. For that part of his injury his remedy is against the persons answerable therefor under the general law of negligence. . . .

There is no language in the Kansas compensation act which explicity declares that the aggravation of an industrial injury caused by the negligence of a physician who treats the injury is to be regarded as a part of the original injury, and that the workmen has no other redress for such negligence than the award provided by the compensation act. Under the common law, an employer who selected a skilful physician or surgeon to treat his injured or ailing servant discharged his full duty to that servant and was not liable for the mistakes or negligent acts or omissions which such professional man might subsequently commit. *Atchison, T. & S. F. R. Co.* v. *Zeiler*, 54 Kan. 340, 38 P. 282.

Since the decision in the Ruth case, supra, continued the Supreme Court, the Kansas legislature has radically changed the workmen's compensation act and has enlarged the master's duty to his servant. It has not, however, specifically changed the particular rule under consideration. Cases can readily be imagined in which the scheduled compensation for an industrial injury would be grossly inadequate for the consequences resulting from the malpractice of a physician in treating the injury. An industrial wound in the face might cause a workman no serious impairment in earning capacity and consequently the compensation award for such an injury would be trivial. If that facial injury were negligently treated by a physician, the result might render the workman's features hideous. Surely such negligence would constitute a tortious wrong for which the physician ought to pay. To hold that the moderate, often nominal, awards of the compensation act would limit the workman's redress for such negligence would shock public conscience. The judgment of the trial court, in favor of the employee, was accordingly affirmed.

Medical Practice Acts: Superfluous Allegations in Information.—The defendant, a chiropractor, was convicted of practicing medicine without a license and appealed to the court of criminal appeals, Texas. He alleged that there was a material variance between the allegations of the information on which the prosecution against him was predicated and the undisputed evidence adduced at his trial. The information charged him with treating Fred Tholen and receiving compensation from him. The evidence showed that Fred Tholen was a child of 12 years and that the defendant's compensation for treating him was paid by Tholen's mother. The defendant admitted that the source from which compensation is received is not material under the medical practice act. He claimed that, while it was unnecessary to make this allegation in the information, such an allegation having been made, it is descriptive of an essential element of the offense and must be proved as alleged. But, said the court, allegations not essential as elements of an offense charged, which may be entirely omitted without affecting the charge against the defendant and without detriment to the indictment, are considered as a mere surplusage and may be disregarded in evidence. The defendant's contention, therefore, is without merit. The defendant next urged error in the action of the trial court in refusing to charge the jury that if they believed or had a reasonable doubt that he was engaged in chiropractic and that chiropractic did not constitute the practice of medicine, they should acquit the defendant. But, said the court, the facts constituting the elements of the offense charged against the defendant were testified to by witnesses for the state; they were not contradicted by any testimony offered by the defendant. There being no controversy over the facts, it became a question of law and not of fact. The charge requested by the defendant was an attempt to have the jury pass on a question of law and not a disputed issue of fact. The action of the trial court in this regard was proper. The conviction was accordingly affirmed.—*Hilty v. State (Texas), 49 S. W. (2d) 786.*

Medical Practice Acts: Variance Between Complaint and Information.—A complaint was filed charging that the defendant, apparently a chiropractor, without having a license to practice medicine, "did then and there treat . . . a human being." An information, based on this complaint, was filed, charging that the defendant without having a license to practice medicine "did then and there treat . . . a human being *for a disease and disorder.*" The defendant was convicted and appealed to the court of criminal appeals, Texas. The information, said the court of criminal appeals, charged the defendant with the unlawful practice of medicine under subdivision 2 of article 741 of the Penal Code, reading in part as follows:

> Any person shall be regarded as practicing medicine within the meaning of this law: . . . (2) who shall treat or offer to treat any disease or disorder . . . by any system or method . . . and charge therefor directly or indirectly, money or other compensation.

It is necessary, in order to charge an offense under this article, that the person charged should either treat or offer to treat a disease or disorder. This the complaint failed to allege, and there is a clear variance between the complaint and the information. The complaint is not sufficient to charge a violation of the law, while the information charges one. Without a valid complaint, the information is worthless and will not sustain a conviction. The judgment of conviction was accordingly reversed and the prosecution ordered dismissed.—*Jarrell v. State (Texas), 49 S. W. (2d) 752.*

Society Proceedings

COMING MEETINGS

American College of Physicians, Montreal, February 6-10. Mr. E. R. Loveland, 133-135 South 36th Street, Philadelphia, Executive Secretary.

Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, February 13-14. Dr. W. D. Cutter, Council on Medical Education and Hospitals, 535 North Dearborn St., Chicago, Secretary.

Pacific Coast Surgical Association, Del Monte, Calif., February 23-25, Dr. Edgar L. Gilcreest, 384 Post Street, San Francisco, Secretary.

Southeastern Surgical Congress, Atlanta, Ga., March 6-8. Dr. B. T. Beasley, 45 Edgewood Avenue, Atlanta, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

8: 1-154 (Oct.) 1932

*Mechanism of Adjustment of Circulation in Hyperthyroidism (Thyrotoxicosis). W. M. Yater, Washington, D. C.—p. 1.

Cardiac Histopathology in Thyroid Disease: Preliminary Report. C. V. Weller, R. C. Wanstrom, H. Gordon and J. C. Bugher, Ann Arbor, Mich.—p. 8.

Study of Heart in Hyperthyroidism. G. Rake and D. McEachern, Baltimore.—p. 19.

Heart Rate During Sleep in Graves' Disease and in Neurogenic Sinus Tachycardia. E. P. Boas, New York.—p. 24.

Signs and Symptoms of Heart Changes in Toxic Goiter: Clinical Study of One Hundred and Forty-Eight Cases. C. T. Burnett and E. Durbin, Denver.—p. 29.

Clinical Study of Goiter in Pacific Northwest, with Especial Reference to State of Heart. N. W. Jones, D. B. Seabrook and F. R. Menne, Portland, Ore.—p. 41.

*Cardiovascular Symptomatology in Exophthalmic Goiter. J. Lerman and J. H. Means, Boston.—p. 55.

The Heart in Hyperthyroidism: Clinical and Experimental Study. E. C. Andrus, Baltimore.—p. 66.

Id.: Experimental Study. F. R. Menne, R. H. Keane, R. T. Henry and N. W. Jones, Portland, Ore.—p. 75.

*Cardiac Status After Prolonged Thyrotoxicosis. J. Marion Read, San Francisco.—p. 84.

Myxedema Heart: Report Based on Study of Seventeen Cases of Myxedema. G. Fahr, Minneapolis.—p. 91.

Congestive Heart Failure and Hypertrophy in Hyperthyroidism: Clinical and Pathologic Study of One Hundred and Seventy-Eight Fatal Cases. E. J. Kepler and A. R. Barnes, Rochester, Minn.—p. 102.

Studies in Thyroid Heart Disease: II. Angina Pectoris and Hyperthyroidism. M. W. Lev and W. W. Hamburger, Chicago.—p. 109.

*Influence of Thyroid Extract and Hyperthyroidism on Electrocardiogram, with Especial Reference to T Waves. J. McGuire and Marget Foulger, Cincinnati.—p. 114.

Auricular Fibrillation in Graves' Disease. P. S. Barker, Ann Arbor, Mich.; Anne L. Bohning, Chicago, and F. N. Wilson, Ann Arbor, Mich.—p. 121.

*Incidence of Auricular Fibrillations and Results of Quinidine Therapy. J. P. Anderson, Cleveland.—p. 128.

*Studies in Thyroid Heart Disease: Value of Ergotamine in Hyperthyroidism and Its Effect on Electrocardiogram. M. W. Lev and W. W. Hamburger, Chicago.—p. 134.

Circulation in Hyperthyroidism.—Yater states that the changes of the circulation in hyperthyroidism are due mainly to the increase of thyroxine in the myocardium, which causes the heart to beat more rapidly and more vigorously. Associated with this are a general vascular relaxation brought about by the local action of metabolites on the arterioles and capillaries and an increase in the circulating blood volume, due mainly perhaps to contraction of the spleen. There is probably also an increase in rate and depth of respiration, the result of the effect of an increased hydrogen ion concentration on the respiratory center. These factors aid in the more rapid return of blood to the heart.

Cardiovascular Symptomatology in Exophthalmic Goiter.—In an analysis of 184 patients with hyperthyroidism, Lerman and Means found that cardiac symptoms are more common in the female; their severity is greater and their duration longer. Cardiac enlargement, precordial thrill and a superficial pericardial friction rub are more common in the female, whereas auricular fibrillation and other forms of arrhythmia are more common in the male. Cardiovascular disease is present in the male and female patients to the same degree. The pulse rate tends to be slower in the male than in the female, while the pulse pressure is higher. It may be inferred, therefore, that the increased volume flow of blood is about the same in the two groups, although brought about by different mechanisms. Various factors influence the frequency of palpitation and dyspnea and their severity. Twenty-one patients with organic cardiac disease are analyzed by the authors. It is indicated that hyperthyroidism alone does not produce so-called thyroid heart disease but causes functional derangement in a cardiovascular system already damaged by other pathologic conditions. The authors describe a superficial pleuropericardial friction rub heard over the sternum.

Cardiac Status After Prolonged Thyrotoxicosis.—Read presents a clinical study aimed at ascertaining the amount of cardiac damage produced by hyperthyroidism. Since it is generally agreed that the duration of the thyrotoxicosis, rather than its intensity, is the important factor in causing heart impairment, only cases of prolonged thyrotoxicosis are included in the author's study. Twenty patients known to have been toxic for from six months to eleven years were studied by the author. Only one of these was considered a cardiac cripple, and this patient had evidence of circulatory failure antedating the onset of thyrotoxicosis by four years. Two other patients (aged 50 and 55) had hypertension which, from their histories, could not be ascribed to their thyroid disease. There was no correlation between duration (or intensity) of thyrotoxicosis and heart size, blood pressure and so on. The author concludes that when cardiac failure supervened in the course of thyrotoxicosis it was a temporary functional insufficiency resulting from overwork (prolonged tachycardia, increased blood flow, and so on), since there remained no evidence of permanent organic damage and because there was no characteristic pathologic lesion. Thyroid-cardiac disease is seldom, if ever, found in young people, but only in those in the later decades of life who have had their cardiac reserve already encroached on by degenerative cardiovascular changes.

Thyroid Extract and Hyperthyroidism.—From the examination of 222 cases of thyrotoxicosis, McGuire and Foulger determined that the T waves in the electrocardiogram of uncomplicated cases of thyrotoxicosis quite frequently are of unusually high voltage and of rolling contour. These changes are not dependent on the pulse rate or on the increased basal metabolic rate and are not specific for thyrotoxicosis, since they are seen also in neurocirculatory asthenia. The administration of thyroid extract to normal persons will produce comparable alterations in the human electrocardiogram. In dogs the administration of large doses of thyroid extract causes tachycardia and increase in the voltage of the T waves. Removal of the stellate ganglions in one animal experiment did not prevent the development of tachycardia under thyroid medication.

Auricular Fibrillation and Quinidine Therapy.—On the basis of a study of 426 patients with auricular fibrillation, Anderson states that the presence of auricular fibrillation in patients with hyperthyroidism seems to depend on the duration of symptoms and the severity of the condition. The mortality in such cases has been reduced greatly by the routine use of iodine before operation. Approximately 45 per cent of patients acquire a normal rhythm within four days after thyroidectomy and about 15 per cent more would develop a normal rhythm if allowed to go untreated; but there is no way of knowing which ones they would be. The remaining 40 per cent would continue to have an abnormal rhythm indefinitely if not treated with quinidine. In order to obtain the optimal results with quinidine it must be used from the third to the sixth day following thyroidectomy, and success can be anticipated in from 90 to 96 per cent of the cases. If treatment is delayed longer than this, the percentage of failures increases considerably.

Value of Ergotamine in Hyperthyroidism.—Lev and Hamburger gave four patients with hyperthyroidism ergotamine orally or hypodermically. One showed an increased basal metabolic rate after ten days, one a decrease in fourteen days, one a decrease in two days and the fourth patient, in whom compound solution of iodine had been combined with ergotamine, a decrease in eleven days. As a result of their experience they conclude that ergotamine, in the dosage and mode of administration employed, is not as effective as compound solution of iodine in reducing the basal metabolic rate. Neither do they feel that the drug can be called a "cure" for thyrotoxicosis. It contributes to the subjective improvement of the patient, but no more than does the use of compound solution of iodine. The tachycardia of hyperthyroidism is generally favorably influenced by ergotamine. The same drug, when used in two cases of tachycardia not of thyroid origin, failed to produce a slowing of the heart rate. Subcutaneous injection of ergot-

amine in the majority of instances causes a prompt change in the electrocardiogram, consisting of a slowing of the heart rate and an increase in height of the T wave. In two of the six patients it produced a prolongation of the PR interval. It likewise causes in most cases of hyperthyroidism an increase in the systolic and diastolic blood pressure, persisting for at least half an hour after its administration.

American Journal of Medical Sciences, Philadelphia

184: 445-596 (Oct.) 1932

The Heart in Funnel Chest. J. Edeiken and C. C. Wolferth, Philadelphia.—p. 445.
Gross Cardiac Hypertrophy in Myocardial Infarction. E. C. Bartels and H. L. Smith, Rochester, Minn.—p. 452.
Spontaneous Rupture of Aorta. O. Klotz and Winifred Simpson, Toronto, Canada.—p. 455.
*Hypotensive Action of Potassium Sulphocyanate in Hypertension. R. S. Palmer, Boston.—p. 473.
*Harmful Effects of Nitroglycerin, with Especial Reference to Coronary Thrombosis. S. H. Prodger and D. Ayman, Boston.—p. 480.
Neuroblastoma of Adrenal with Multiple Metastases. J. Klein, Chicago. —p. 491.
Hypoglycemia Associated with Tumor of Islands of Langerhans and with Adrenal Insufficiency, Respectively. J. Rabinovitch and F. W. Barden, St. Louis.—p. 494.
Human Pancreatic Secretion Studied from Case of Pancreatic Cyst with Fistula. J. Kahn and H. M. Klein, New York.—p. 503.
Further Observations on Use of Dextrose in Pneumonia. W. W. G. Maclachlan, G. J. Kastlin and R. Lynch, Pittsburgh.—p. 511.
*Clinical Study of Artificial Hyperthermia Induced by High Frequency Currents. F. W. Bishop, C. B. Horton and S. L. Warren, with technical assistance of Emmy Lehman, Rochester, Minn.—p. 515.
Bacillus Proteus Septicemia with Recovery. H. V. Paryzek and E. E. Ecker, Cleveland.—p. 533.
Effect of Exercise on Human Erythrocytes. Christianna Smith and Katharine F. Kumpf, South Hadley, Mass.—p. 537.
*Contact Dermatitis (Venenata): Distribution and Importance of Heleniums as Cause of Contact Dermatitis in United States. R. M. Balyeat, H. J. Rinkel and T. R. Stemen, Oklahoma City.—p. 547.
Relation of Neocinchophen to Question of Cinchophen Toxicity. J. S. Davis, Jr., New York.—p. 555.

Action of Potassium Thiocyanate in Hypertension.—Thirty-five well controlled patients, most of them showing the effects of continued arterial hypertension, were treated by Palmer with potassium thiocyanate. This drug, when used in sufficient dosage, caused a definite and marked lowering of the arterial blood pressure in 31 per cent of the patients. Toxic effects are skin rashes, gastro-intestinal symptoms and central nervous system symptoms, such as acute apprehension and excitement, which may be severe enough to constitute a toxic psychosis. Weakness may accompany the use of the drug but is probably not a toxic effect and does not necessarily contraindicate its use. Angina pectoris, in those subject to this symptom, may be increased and in some patients may be induced by the use of this drug. Toxic effects are reduced to the minimum by carefully controlled dosage. Limited observation of the use of the drug in combination with a general regimen including rest and diet suggests that it may be of value, though these results may not be referred to in accurately appraising the hypotensive action. The author states that the hypotensive effect is not lasting and that a second or third such effect, after the drug is once discontinued, is more difficult to obtain.

Harmful Effects of Glyceryl Trinitrate.—Prodger and Ayman administered glyceryl trinitrate in therapeutic doses to 110 patients under direct observation. Alarming toxic reactions were observed in four. In two instances the blood pressure became indeterminable and the pulse could not be palpated. Heart block developed in one of these, and in the other the course of cardiac infarction was thought to be unfavorably influenced. A record was made of the electrocardiographic changes that occurred during the reactions in these two patients. In the other two patients there were, as evidence of toxicity, marked slowing of the pulse rate, great drop in blood pressure, and severe constitutional symptoms. Careful supervision of the patient is advised when the first dose of glyceryl trinitrate is administered in order that those who have an idiosyncrasy to it may be discovered and possible dangerous reactions avoided. A small initial dose from $\frac{1}{200}$ to $\frac{1}{300}$ grain (0.0003 to 0.0002 Gm.) is advised. The possible harmful effects of glyceryl trinitrate in coronary thrombosis are reported.

Hyperthermia Induced by High Frequency Currents.—According to Bishop and his associates, artificial hyperthermia can be carefully and accurately controlled by a rather standardized procedure well within the scope of the average hospital. The whole body temperature is elevated by the passage of high frequency currents through the trunk by means of large block tin electrodes. The temperature is maintained at any desired level below 42 C. (107.6 F.) for five hours without danger to a patient in ordinary physical condition. This is accomplished by keeping the patient surrounded by air at a temperature sufficiently high to compensate for losses by radiation. The temperature can be lowered at will by cooling the patient's environment, by cold drinks and by a cold enema. The condition of the patient is determined by temperature, pulse and respiration readings taken every ten minutes, by blood pressure determinations at frequent intervals, and by noting the color of the skin. The fluid balance should be maintained. Excitement is avoided by proper sedatives and calmness on the part of the personnel. Treatments have been given to fifty-seven patients in nineteen months, with a mortality of 2 per cent based on 100 treatments; if based on the number of patients, the mortality is 3.5 per cent. A careful selection of patients should be made until sufficient experience has been acquired to evaluate the possibility of harm to patients in poor condition.

Contact Dermatitis.—Balyeat and his associates state that Helenium microcephalum D. C. is an important etiologic factor in contact dermatitis (venenata) in the Southwest. One or more species of the helenium family grow in every state in the Union. The irritating substance is an oleoresin. It is soluble in absolute alcohol, benzene or ether and relatively insoluble in water. Since the characteristic of the genus is an oleoresin, any species should be important from the standpoint of contact dermatitis. Patch tests should be made with great care because a systemic reaction may occur, manifestating itself by abdominal cramps, diarrhea, conjunctivitis and headache. The widespread distribution of the heleniums affords adequate contact for the development of a specific sensitization.

American Journal of Ophthalmology, St. Louis

15: 901-1006 (Oct.) 1932

Eyes of School Children. E. Jackson, Denver.—p. 901.
Kerotoplasty: An Historical and Experimental Study, Including a New Method. R. Castroviejo, New York.—p. 905.
Light-Sense. P. W. Cobb, St. Louis.—p. 917.
Ultraviolet Light in Ophthalmology. H. R. Hildreth, St. Louis.—p. 925.
Transmissive Properties of Tinted Lenses. W. W. Coblentz, Washington, D. C.—p. 932.
Contusion of Eyeball with Delayed Intra-Ocular Hemorrhage: Report of Three Cases. F. C. Cordes and W. D. Horner, San Francisco.—p. 942.
The Fitting of Contact Glasses. R. von der Heydt, Chicago.—p. 946.
*Optic Neuritis and Optic Atrophy Due to Thallium Poisoning Following Prolonged Use of Koremlu Cream: Report of Case. G. H. Stine, Colorado Springs, Colo.—p. 949.
Radiational Cataract. J. E. Lebensohn, Chicago.—p. 953.

Optic Atrophy Due to Thallium Poisoning.—Stine reviews the literature and presents a case in which polyneuritis, optic neuritis and optic atrophy developed following the prolonged use of Koremlu depilatory cream which contained 7 per cent thallium acetate. Relief from sensory symptoms and steady improvement in the motor paralysis and visual acuity followed withdrawal of the drug and institution of measures to promote elimination, such as calcium, iodides, sodium thiosulphate and sweating. Ocular complications of thallium poisoning are rare, but clinical and experimental evidence show the distinctly toxic effect of thallium on the eye. Cataract, keratitis, optic neuritis, retrobulbar neuritis and postneuritic optic atrophy may be caused by thallium poisoning.

American Journal of Physical Therapy, Chicago

9: 169-196 (Oct.) 1932

Present Day Status of Tonsil Electrocoagulation. J. A. Haiman, New York.—p. 173.
Care of Oily Skin. H. Goodman, New York.—p. 176.
Light Therapy in Cities. E. Biancani and H. Biancani, Paris, France. —p. 179.
Infra-Red or Radiant Heat in Treatment of Rheumatisms. H. Dausset and Lucy, Paris, France.—p. 184.
Diathermy and Other Electrical Agents in Infantile Paralysis. H. Bordier, Lyons, France.—p. 189.

9: 197-216 (Nov.) 1932

Conservatism in Nasal Surgery as Applied to Nasal Mucosa. W. A. Gross, Chicago.—p. 199.
Bipolar Active Electrode Technic for Tonsils. H. Goodman, New York.—p. 201.
Cutaneous Cancer as Seen by Ophthalmologist and Otolaryngologist. D. T. Atkinson, San Antonio, Texas.—p. 203.

American Journal of Public Health, New York

22: 1027-1122 (Oct.) 1932

Participation of Lay People in Promotion of Rural Child Health Program. Elma Rood, Detroit.—p. 1027.
H and O Agglutination as Aid to Diagnosis of Typhoid Fever. Anna Dean Dulaney, W. T. Wikle and Ruby Trigg, Memphis, Tenn.—p. 1033.
Significance of Infant Mortality Data in Appraisal of Urban Community. A. D. H. Kaplan, Denver.—p. 1037.
*Effect of Hyperpyrexia Induced by Ultra-High Frequency Current on B. Typhosus Agglutinin and Complement. E. E. Ecker and M. O'Neal, Cleveland.—p. 1050.
Observations and Studies on Silicosis by Diatomaceous Silica. R. T. Legge and Esther Rosencrantz, San Francisco.—p. 1055.
Adult Health Education. W. H. Brown, Palo Alto, Calif.—p. 1061.
The Greenburg-Smith Impinger Sampling Apparatus for Dusts, Fumes, Smoke and Gases. L. Greenburg, New Haven, Conn.—p. 1077.

Hyperpyrexia Induced by Ultra-High Frequency Current.—Ecker and O'Neal induced hyperpyrexia in nine guinea-pigs and ten rabbits by means of a high frequency electric current. Temperatures of from 40.5 C. (104.9 F.) to 43.1 C. (109.6 F.) were obtained. Temperatures of 42 C. (107.6 F.) or over, if maintained for any length of time, were lethal. The hyperpyrexia so induced depressed, but did not entirely destroy, inoculation agglutinins to B. typhosus. The amount of depression was roughly proportional to the length of time of heating and the degree of temperature obtained. The inoculation agglutinins returned to their original titer within twenty-four hours to one week, except in one fatal case in which there was a terminal stimulation beyond the original titer. Complement was usually depressed on the first heating, but on a second heating it was stimulated. In no case was it completely or permanently destroyed. Hyperpyrexia has no permanent effect on inoculation agglutinins. If they are depressed during the time of fever, they soon return to normal.

Archives of Dermatology and Syphilology, Chicago

26: 597-782 (Oct.) 1932

Considerations of Present Status of Serology of Syphilis: Montevideo Conference of League of Nations' Health Committee. R. L. Kahn, Ann Arbor, Mich.—p. 597.
*Histogenesis of Multiple Idiopathic Hemorrhagic Sarcoma of Kaposi. J. Dörffel, Königsberg, Germany.—p. 608.
Keratoderma Palmaris et Plantaris (Keratoderma Punctatum): Report of Case. C. F. Sims, New York.—p. 635.
Scleroma: Report of Case. H. E. Alderson, San Francisco.—p. 639.
*Onycholysis and Onychomadesis: Report of Case of Each, with Review of Literature. M. J. Strauss, New Haven, Conn.—p. 644.
Turban Tumor, or Sweat Gland Carcinoma: So-Called Endothelioma of Scalp: Report of Case Illustrating Its Epithelial Structure. J. W. Jones, H. S. Alden and E. L. Bishop, Atlanta, Ga.—p. 656.
Tinea Barbae of Upper Lip. A. M. Davidson and Eleanor S. Dowding, Winnipeg, Canada.—p. 660.
Naevus Sebaceus (Jadassohn): Report of Four Cases. S. S. Robinson, Los Angeles.—p. 663.
Senear-Usher Pemphigus. A. R. Woodburne, Grand Rapids, Mich.—p. 671.
Lichen Planus of Nails: Report of Case. F. Vero, New York.—p. 677.
*Keratoderma Blennorrhagicum. G. V. Stryker and A. W. Ham, St. Louis.—p. 684.
Naevus Unilateralis Comedonicus: Naevus Follicularis Keratosus of White. S. E. Sweitzer and L. H. Winer, Minneapolis.—p. 694.
Cutaneous Sensitization to Wool. L. W. Lord, Baltimore.—p. 707.
*Fungus Infection of Feet: Fumigation of Shoes with Formaldehyde as Means of Treatment. Y. Henderson, New Haven, Conn.—p. 710.

Idiopathic Hemorrhagic Sarcoma.—On the basis of a study of sixteen cases and corroborative evidence found in the literature, Dörffel believes that the sarcoma of Kaposi is a disease of the reticulo-endothelial system, which disease is, *a priori*, not a true blastoma but may become one in some cases after long continued irritation. However, he hesitates to employ the term "reticulo-endotheliosis," since it does not clearly include all the manifestations of the disease and since it has been used also in designating other diseases, such as mycosis fungoides. The term does not indicate precisely that the third leukocytic system, the monocyte system, is affected as he has demonstrated in his study. Neither does it suggest the embryonal character of these undifferentiated reticulo-endothelial cells (Herzog). From his observations the author concludes that: (1) the vascular system throughout the body is the site of definite clinical changes, such as ectasia, varicosities and purpuric lesions; (2) nodules may be found distributed along the vessels and adherent to the vessels; (3) microscopically, newly formed capillaries and polymorphous cellular infiltrate are found, the cells of which arise from the reticulo-endothelial system (lymphocytoid cells); (4) the monocytic system is affected, as evidenced by an increased number of monocytes in the tissues and monocytosis in the differential blood smear, and (5) the presence of lattice fibers throughout the infiltrate may add further weight to this contention, but present knowledge of lattice fibers does not permit too definite conclusions on this point.

Onycholysis and Onychomadesis.—Strauss states that separation of the nails from the nail bed and matrix without previous local pathologic changes is an unusual occurrence. The cases reported in the literature can be separated into two groups: one in which the process begins at the free border of the nails and is usually not complete; the other in which the process apparently begins at the matrix and is usually complete. Various causes have been ascribed to the condition, such as occupational diseases (in laundresses, bottle washers), burns, emotional strain, exposure to lightning, alopecia areata, tabes dorsalis and arsenic poisoning. It seems probable that the pathologic process is one of the nail bed in one case and of the matrix in the other, the abnormality of the nail plate being the only visible evidence of this process. The author reports a case of each group, in which the cause could not be definitely ascertained.

Keratoderma Blennorrhagicum.—A case of keratoderma blennorrhagicum is reported by Stryker and Ham in which the cutaneous manifestations began as small pinpoint areas resembling droplets of wax and progressed to typical keratotic lesions, without evident clinical phases of vesiculation or pustulation. The case differed from the usual case in that it was of a long duration, seven years, and that it demonstrated an erythematous eruption chiefly over the joints and extremities in addition to the erythematous eruption around the keratotic lesions. Histologically, the latter showed a subacute type of inflammatory reaction in the corium with an infiltration of lymphocytes, plasma cells, eosinophils and mast cells. The epidermis showed a well marked parakeratosis, together with a marked thickening and edema, particularly of the prickle cell layer. The condition was differentiated from psoriasis not only by the clinical observations but also by the subacute nature of the inflammatory reaction, which showed a considerable number of plasma cells with an absence of polymorphonuclear leukocytes and micro-abscesses.

Fungal Infection of Feet.—Henderson observed that, when shoes are left for from eight to sixty hours in a closed tin box containing a small dish of formaldehyde, the vapor effects sterilization even at room temperature. Leather absorbs considerable amounts of formaldehyde vapor, which it gives off again for many hours afterward. When shoes so treated during the night are worn during the day, a distinct amelioration or disappearance of infection of the skin may result after a time. Incidentally, the feet are also protected against reinfection from the shoes.

Archives of Surgery, Chicago

25: 615-818 (Oct.) 1932

Process of Tendon Repair: Experimental Study of Tendon Suture and Tendon Graft. M. L. Mason and C. G. Shearon, Chicago.—p. 615.
Traumatic Shock. S. O. Freedlander and C. H. Lenhart, Cleveland.—p. 693.
*Peritonitis: II. Synergism of Bacteria Commonly Found in Peritoneal Exudates. F. L. Meleney, J. Olpp, H. D. Harvey and Helen Zaytseff-Jern, New York.—p. 709.
Breaking Strength of Healing Fractured Fibulae of Rats: IV. Observations on High Carbohydrate Diet. R. M. McKeown, M. K. Lindsay, S. C. Harvey and R. W. Lumsden, New Haven, Conn.—p. 722.
*Etiology of Femoral Hernia. L. W. Tasche, Sheboygan, Wis.—p. 749.
Changes in Wall of Bladder Secondary to Prostatic Obstruction: Their Significance in Prostatic Surgery. D. K. Rose, St. Louis.—p. 783.
*Etiology of Gallstones: I. Chemical Factors and Rôle of Gallbladder. E. Andrews, R. Schoenheimer and L. Hrdina, Chicago.—p. 796.
Forty-Eighth Report of Progress in Orthopedic Surgery. J. G. Kuhns, E. F. Cave, S. M. Roberts and J. S. Barr, Boston; J. H. Freiberg, Cincinnati; J. E. Milgram, New York; G. Perkins, London, England, and P. D. Wilson, Boston.—p. 811.

Peritonitis.—According to Meleney and his associates, the bacteria commonly found in peritoneal exudates, namely, colon bacillus, green streptococcus and Welch's bacillus, have a synergistic action in producing a lethal infection of the peritoneum. They kill in much smaller doses when two or three of the species are combined than when inoculated in pure culture and the Welch bacillus is not more active in this synergistic action than the other two. Smears and cultures of the

peritoneal exudate should be made at the time of operation in cases of peritonitis, in order that there may be a basis for prognosis. If the cultures reveal more than one species of intestinal organism, the prognosis is liable to be worse than if any one organism is found in pure culture. (This does not apply to the primary forms of peritonitis usually due to hemolytic streptococcus or pneumococcus.) Any study of experimental or clinical peritonitis, from a bacteriologic point of view, must take into consideration not only the adjuvant action of one species of intestinal bacteria on the others but the possibility of a toxic substance, formed by the synergism of these bacteria when growing together in mixed cultures, which may not be produced by any one of the species in pure cultures.

Femoral Hernia.—From a study of the literature Tasche concludes that femoral hernial sacs are never congenital. They are always acquired and are produced by traction and not by pressure. Males have as many femoral peritoneal diverticula as females but, clinically, femoral hernia is found twice as often in women as in men. The lacuna vasorum increases in size in both sexes from fetal life to old age. This enlargement of the lacuna vasorum favors the production of femoral hernia because it allows the force of traction to act to better advantage. The lacuna vasorum is smaller in the female than in the male. Poupart's ligament is shorter in females than in males. There is little, if any, correlation between the size of the lacuna vasorum and the length of Poupart's ligament in adults. In fetal life and early infancy there is a high correlation. The femoral artery increases in caliber from fetal life to old age. The femoral vein increases in caliber up to adult life and then varies according to other factors, such as height and weight. The walls of the femoral artery and vein increase in thickness with age. There is no correlation between the size of the lacuna vasorum and the size of the vessels in adults; during fetal life and early infancy this correlation is good. Extirpation of the hernial sac with adequate closure of the femoral orifice offers the patient the best hope of permanent cure. The available space for the development of a femoral hernia is smaller in the female than in the male; that is, the difference between the sum of the areas of the two femoral vessels, subtracted from the total area of the lacuna vasorum, is greater in males than it is in females.

Gallstones.—On the basis of their experiments on dogs and a study of the gallbladder contents in twelve cases of cholesterol stones removed at operation, Andrews and his associates conclude that the cholesterol is held in solution in the bile in a series of loose and firm chemical complexes with the bile salts. Most of these complexes may be broken up by relatively slight influences, as, for instance, dialysis. If the bile salts are removed from these complexes or from bile, by any means, cholesterol is precipitated. There is no differential absorption of cholesterol and bile salts by the normal gallbladder. The infected gallbladder absorbs bile salts rapidly but cholesterol slowly, if at all. Therefore, the bile salt-cholesterol ratio is of supreme importance in the precipitation of cholesterol stone-containing gallbladder bile from necropsy material, as reported by Neuman, and is confirmed and extended to fresh operating room material.

Canadian Public Health Journal, Toronto

23: 453-502 (Oct.) 1932

Public Health Nursing, as Seen by the Psychiatrist, Private Physician, Layman and Public Health Nurse. W. T. B. Mitchell, Montreal; A. M. Jeffrey and Adelaide M. Plumptre, Toronto, and B. E. Harris, Oshawa, Ont.—p. 455.
Public Health and Social Welfare. H. Emerson, New York.—p. 470.
Prophylaxis in Mental Disease. C. A. Baragar, Edmonton, Alta.—p. 478.
*Antigenic Qualities of Dissociated Strain of Brucella Abortus. R. Gwatkin, Toronto.—p. 485.

Brucella Abortus.—According to Gwatkin, a virulent strain of Brucella abortus was dissociated by growing on 10 per cent immune serum broth. The R type was more vigorous in growth habits and rather stringy but otherwise similar to the S type, as far as examined. Hydrogen sulphide was produced equally by the two. The R type was spontaneously agglutinated in 0.85 per cent salt solution. It rendered immune serum broth cloudy but was agglutinated and grew at the bottom of the tube in plain broth. The S type gave the opposite results. R remained in suspension fairly well in distilled water and sodium chloride solutions up to 0.4 per cent. As an antigen in the complement fixation test, R had little or no binding power with R or S serums. It was more anticomplementary than the S type. The anticomplementary action was inhibited in suitable dilutions of antigen by immune and normal serums. The R type was fed to a pregnant guinea-pig. This animal gave birth to normal young and was free from infection when killed. The same dose of S produced abortion and the organism was recovered. Twelve guinea-pigs were injected with one slant of R each and none became infected. The organism was recovered from the apparently normal spleen twenty-one days, but not seventy-six days, after injection. No agglutinins nor complement-fixing bodies were produced against either R or S by any of these animals. The R type was unchanged after seventy-five daily subcultures on liver agar and was still R after thirteen guinea-pig passages. The tenth, eleventh and thirteenth subcultures, while still R serologically, produced acute peritonitis. Suspensions of old cultures were not spontaneously agglutinated in some cases. These suspensions were not agglutinated by immune serum nor did they possess any antigenic value in the complement fixation test. Subcultures from the old ones were spontaneously agglutinated. One liver agar slant of R injected by the intra-abdominal route failed to possess any antigenic value in the complement fixation test. There was no difference between the vaccinated and control groups judged by the criteria of serum titers, lesions, cultures and weights.

Delaware State Medical Journal, Wilmington

4: 219-234 (Oct.) 1932

Statutory Safeguards to Health. U. W. Hocker, Lewes.—p. 219.
Delaware Medicine in Colonial Times. P. W. Tomlinson, Wilmington. —p. 221.
The Delaware White House Conference: Public Health Administration: Section II. A. C. Jost, Dover.—p. 224.
Social Insurance Impossible to Abolish When Once Established. E. H. Ochsner, Chicago.—p. 227.

Johns Hopkins Hospital Bulletin, Baltimore

51: 185-261 (Oct.) 1932

Mechanism of Anemia in Infancy. H. Josephs, Baltimore.—p. 185.
Necrosis of Spinal Cord Produced by Electrical Injuries. O. R. Langworthy, Baltimore.—p. 210.
Acute Pneumococcic Nephritis. S. S. Blackman and G. Rake, Baltimore. —p. 217.
A Students' Bibliography of Internal Medicine: Typhoid Fever. A. L. Bloomfield, San Francisco.—p. 234.

Journal of Nervous and Mental Disease, New York

76: 313-424 (Oct.) 1932

Case of Recklinghausen's Disease with Observations on Associated Formation of Tumors. J. W. Kernohan and H. L. Parker, Rochester, Minn.—p. 313.
*Masked Thyrotoxicosis Simulating Primary Neurosis. S. Ginsburg, New York.—p. 331.
*Meningitis Caused by Nonhemolytic Streptococcus: Report of Case with Recovery. K. Rothschild, New Brunswick, N. J.—p. 360.
Rôle Played by Masturbation in Causation of Mental Disturbances. W. Malamud and G. Palmer, Iowa City.—p. 366.

Thyrotoxicosis Simulating Primary Neurosis.—Ginsburg reports in detail the case histories of six patients suffering from thyrotoxicosis. From his observations and a review of the literature he states that thyrotoxicosis is a disease that affects persons of all ages. Emotional shock and strain—biologic, social-economic or sexual traumatic—in apparently normal or neuropathic persons may lead to the clinical development of exacerbation of atypical thyrotoxicosis. Marked thyrotoxicosis may exist for many years without any thyroid enlargement or exophthalmos. The constitutional symptoms of thyrotoxicosis resemble closely the manifestations of the neuroses and, in the absence of thyroid enlargement and exophthalmos, have been mistaken for pure neuroses. Many a case of "neurocirculatory asthenia" and nervous indigestion has been proved to be thyrogenous in origin. A depressive psychosis may develop in the course of thyrotoxicosis, not as a mere casual phenomenon but definitely dependent on toxic thyroid products. Such a psychosis has cleared up and failed to recur when the thyrotoxic condition was controlled. When one is confronted by a case of neurosis or depressive psychosis associated with tachycardia, tremor, heat tolerance, excessive sweating, loss in weight, diarrhea with or without abdominal cramps, with or without thyroid enlargement, the possibility

of thyrotoxicosis should be thought of and careful studies made to establish or rule out its presence. The most valuable single corroborative laboratory test, when positive, is the presence of an increased basal metabolic rate. However, one must remember that in atypical or "borderline" cases of thyrotoxicosis the basal metabolic rate may be only slightly raised or normal. In doubtful cases the iodine therapeutic diagnostic test—marked amelioration or aggravation of symptoms after iodine medication—may help to decide the presence of thyrotoxicosis. Similarly, the radium therapeutic diagnostic test is of great value in atypical or borderline cases to differentiate between thyrotoxicosis and pure neurosis. Marked clinical improvement following radium application over the thyroid speaks in favor of an underlying thyrotoxicosis. The radium therapeutic diagnostic test properly carried out by an experienced radium therapist is a safe and dependable method to yield the desired information without subjecting the patient to the dangers of operation and its frequent sequelae—myxedema—in these borderline cases.

Meningitis Caused by Nonhemolytic Streptococcus.—In a case of meningitis with complete recovery, observed by Rothschild, repeated spinal fluid examinations showed nonhemolytic streptococcus in pure culture. The blood count never went below 3,890,000. The hemoglobin was never less than 80 per cent. The differential count showed 93 per cent polymorphonuclears and 7 per cent lymphocytes at the beginning of the disease and 72 per cent polymorphonuclears and 28 per cent lymphocytes at the time of discharge. The treatment consisted of repeated spinal punctures, on the average of two a day, and intravenous injections of 500 cc. of a 5 per cent solution of dextrose twice a day. The latter treatment was started early in the disease in order to keep up the alkali reserve of the patient and to prevent a negative water balance. Before the micro-organism was identified, the patient was given an intraspinal injection of antimeningococcus serum, which caused his temperature to rise to 107.8 F. and weakened him considerably. The cause of the disease was never definitely established. On physical examination the author could not find any focus except one infected tooth, which was removed after recovery. The author believes that the removal of a focus at the time of the height of a general infection is a dangerous procedure in that a great number of micro-organisms will be thrown into the blood stream. When there is a skin lesion, or any lesions in which one might get easy drainage without doing harm to the surrounding structures and thus spread the infection, an immediate attack on the focus is advisable.

Journal of Thoracic Surgery, St. Louis

2: 1-114 (Oct.) 1932

*Special Considerations Relating to Surgical Closure of Large Upper Lobe Tuberculous Cavities. J. Alexander, Ann Arbor, Mich.—p. 1.
*Mechanism of Development of Tuberculous Pneumonia Following Thoracoplasty. H. A. McCordock and H. Ballon, St. Louis.—p. 24.
Dangers and Complications of Oleothorax: Report of Cases. J. N. Hayes, Saranac Lake, N. Y.—p. 34.
Experimental Fixation of Mediastinum. M. Berck, St. Louis.—p. 44.
Left Congenital Diaphragmatic Hernia, in Baby of Thirteen Days, Operated on Successfully. P. N. Coryllos and A. Tow, New York.—p. 56.
Effect of Pulmonary Artery Ligation on Healing Time of Experimental Pyogenic Lung Abscesses in Dogs. W. M. Tuttle and G. L. Nicoll, Chicago.—p. 60.
Effects of Complete Occlusion of Thoracic Aorta: Experimental Study. A. Blalock, Nashville, Tenn.—p. 69.
Mediastinotomy for Experiments on Heart and Lungs in Dog. C. F. Horine, Baltimore.—p. 77.
Distribution of Pulmonary and Bronchial Circulation: Experimental Study. C. F. Horine and C. G. Warner, Baltimore.—p. 80.
*Metastatic Carcinoma of Heart Secondary to Primary Carcinoma of Lung. C. H. Mead, Minneapolis.—p. 87.
Description of Thoracoplasty Brace. W. Woodruff, Saranac Lake, N. Y.—p. 99.

Surgical Closure of Tuberculous Cavities.—According to Alexander, nonclosure of large or stiff-walled cavities in the upper third of the lung is the most frequent cause of failure to effect a cure of tuberculosis by artificial pneumothorax or surgical operation. Medium-sized and small cavities with walls that are not exceptionally rigid can usually be closed by induced pneumothorax, phrenicectomy, extrapleural pneumolysis, paravertebral thoracoplasty of little or medium extensiveness, or some combination of these or other less frequently used measures. Large or stiff-walled cavities usually require for closure extensive posterolateral thoracoplasty, which for safety should be performed in three or more stages. The author describes a special simple maneuver for gaining wide and easy access to the upper ribs, including the first. He discusses the value of posture, shot bags, an effective elastic brace and preliminary parasternal chondrectomy in increasing the chance of complete closure of a cavity after thoracoplasty. Incomplete closure of a cavity by a posterolateral thoracoplasty can usually be made complete by employing anterolateral thoracoplasty, secondary posterolateral thoracoplasty or extrapleural pneumolysis with paraffin, pectoral muscles or rubber bag filling. The author describes a simple technic for an anterolateral thoracoplasty that removes the upper cartilages and ribs, including the first, to the sternum and sometimes including part of the sternum. Indications for anterolateral thoracoplasty to supplement extensive posterolateral thoracoplasty are relatively infrequent. Among approximately 100 patients who have had posterior thoracoplasty, the combined operation was performed on fourteen patients with large or unusually stiff-walled cavities. The cavities apparently became completely closed in ten, small but not closed in three, and one patient died.

Tuberculous Pneumonia Following Thoracoplasty.—McCordock and Ballon believe that many of the so-called pneumonias and edemas that develop following thoracoplasty in cases of pulmonary tuberculosis are of a tuberculous nature. That these tuberculous lesions are not the result of a hematogenous dissemination can be readily shown by the absence of tubercles in other organs. Perhaps the fact that some patients recover from these induced tuberculous pneumonias is due to the relative paucity of tubercle bacilli in these lesions. This view is supported by the experiments of Austrian and Willis, who have shown that the presence of dead or disintegrated bacteria and their products may result in a tuberculin reaction which can, of course, resolve completely or proceed to the formation of hard tubercles. One might ask why tuberculous pneumonia develops following the operation, when lesions fail to develop in the good lung before the operation, despite the presence of tubercle bacilli-laden sputum, which must bathe the tracheobronchial tree. The authors believe that the past work of Rich and McCordock supplies a possible answer; they have shown that the important consideration is the number of tubercle bacilli that reach the alveoli. Patients subjected to thoracoplasty are all potentially sensitized persons, and the compression therapy merely acts as an inoculating mechanism which leads to the sudden discharge of relatively large quantities of tubercle bacilli or their products into the alveoli of uninvolved lung tissue. This would suggest that preoperative prophylactic measures of a suitable kind might prevent the occurrence of a secondary tuberculous pneumonia in the previously nonaffected lung, or at least lessen its frequency.

Metastatic Carcinoma of Heart.—From a review of the literature and the necropsy statistics of ten series of cases, Mead concludes that primary or secondary carcinoma of the heart is extremely rare. Metastasis to the heart is more common than primary cardiac neoplasm. Carcinomatous metastases to the heart may occur from practically all organs of the body in which malignant diseases are found. Carcinoma of the lungs is the most common source of carcinoma of the heart. Metastatic carcinoma of the heart is almost always associated with pulmonary metastases. In all probability, metastases to the heart are blood borne. Peripheral metastases from carcinoma of the lungs, in all probability, pass most frequently through the pulmonary veins, left atrium, left ventricle and aorta. Metastatic carcinomatous thrombosis of the heart with resulting carcinomatous embolic phenomena is rare. There are no pathognomonic signs of carcinoma of the heart. Clinical diagnosis of carcinoma of the heart is rarely, if ever, made.

Maine Medical Journal, Portland

23: 199-216 (Oct.) 1932

Diagnosis of Premature Separation of Normally Implanted Placenta. S. R. Webber, Calais.—p. 200.
Modern Tendencies in Infant Feeding. E. T. Wyman, Boston.—p. 204.
Simple Laboratory Tests for Practitioner. S. H. Proger, Boston.—p. 207.
Social Insurance Impossible to Abolish When Once Established. E. H. Ochsner, Chicago.—p. 212.

Medical Bull. of Veterans' Adm., Washington, D. C.

9: 119-227 (Oct.) 1932

Can We Prevent Cancer? G. E. Pfahler.—p. 119.
Statistical Study of One Thousand Two Hundred and Fifty Autopsies in Veterans' Administration Hospitals. L. E. Nolan.—p. 124.
Serum Reactions: Their Classification, Diagnosis and Management. L. H. Criep.—p. 142.
Spinal Anesthesia. G. C. Kirk and R. D. Green.—p. 147.
Recording of Manometric Pressures in Artificial Pneumothorax. H. P. Bacon.—p. 151.
Bilateral Pneumothorax in Treatment of Far-Advanced Pulmonary Tuberculosis. T. A. Wayland.—p. 154.
Suggestions for Standardization of Technic and Terminology in Roentgen-Ray Work. S. B. McFarland.—p. 157.
Insulin Inactivity. W. O. Manion.—p. 160.
Study of Delusions in Schizophrenia and General Paresis. C. Lewis. —p. 162.
Following Patient Through Neuropsychiatric Receiving Ward. H. O. Witten.—p. 166.
Medical Administration in Regional Office. W. F. Dager.—p. 171.
Are We Overhospitalizing Our Pulmonary Tuberculosis Patients? W. L. Carman.—p. 176.
Method for Renovating Deteriorated Potassium Iodide. J. H. Baker. —p. 180.

New England Journal of Medicine, Boston

207: 685-724 (Oct. 20) 1932

*Common and Hepatic Duct Stones. F. H. Lahey, Boston.—p. 685.
*Hinton Test in Diagnosis and Treatment of Syphilis in Penal Institution. Helen M. Wiestling, Framingham, Mass., and A. Berk, Boston. —p. 690.
Bernardo Ramazzini, 1633-1714. F. D. Donoghue, Boston.—p. 695.
Progress in Psychiatry for 1931. K. M. Bowman, Boston.—p. 701.

207: 725-766 (Oct. 27) 1932

Remarks on Medical Economics. F. H. Lahey, Boston.—p. 725.
Acute Nondiphtheritic Laryngeal Obstruction: Report of Fifty-One Cases Treated at Hartford Isolation Hospital During Past Six Years. C. L. Thenebe, Hartford, Conn.—p. 740.
Medical Progress: Gastro-Intestinal Surgery in 1931. M. A. McIver, Cooperstown, N. Y.—p. 743.

Common and Hepatic Duct Stones.—From the observation of 1,306 cases of biliary tract disease, at the Lahey Clinic, Lahey states that common and hepatic duct stones tend to occur in patients who have had stones and infection within the gallbladder for a long time. In 39 per cent of the cases in which he has found common and hepatic duct stones at operation there has been no associated jaundice. Common duct stones, particularly at the ampulla of Vater, can exist in the entire absence of any certain evidence of their presence, even that of palpation. The mortality of operations for gallstones when there are stones in the common and hepatic duct is distinctly higher (13.3 per cent) than when there are stones only in the gallbladder (4 per cent). The indications for opening and exploring the common duct which the author employs are stated. A considerable part of the mortality of the late gallstone operations is associated with dilatation and infection of the biliary tract and diminished function of the liver. When gallstones are present, the diagnosis should be made early. Patients should not be permitted to pass through several attacks of gallstone colic. Earlier operations for gallstones will result in lower mortality rates and better end-results.

Hinton Test in Diagnosis of Syphilis.—Wiestling and Berk state that, in the penal institutions of Massachusetts, the Wassermann test is the one officially used as an aid in the diagnosis and management of syphilis. In November, 1929, the Hinton test was instituted, in addition to the Wassermann test, as a means of serologic diagnosis. During the succeeding eighteen months, 389 women were examined, of whom 139, or 35.7 per cent, showed positive reactions at one time or another, or gave a history of syphilis or presented clinical signs or symptoms of the disease. Both Wassermann and Hinton tests were done on the same specimen of blood. From the comparison of the results obtained, the authors conclude that the Hinton test was positive in more than twice as many cases of syphilis as the Wassermann and therefore is a distinct aid in the diagnosis of syphilis. In treated cases the Hinton reaction remained positive longer than the Wassermann, indicating, as far as they could determine, continuation of treatment and therefore better management. They believe that a negative Hinton reaction may be considered a diagnostic aid in ruling out active syphilis of the central nervous system whenever suspicious signs are encountered.

New Jersey Medical Society Journal, Orange

29: 733-810 (Oct.) 1932

Random Thoughts on Medical Economics. L. Emerson, Orange.—p. 733.
Gas Bacillus Bacteremia Following Abortion. R. A. Kilduffe and D. B. Allman, Atlantic City.—p. 742.
Functional Indigestion. W. B. Stewart, Atlantic City.—p. 743.
*Management of Peptic Ulcer. T. K. Lewis, Camden.—p. 747.
Recent Advances in Surgery. G. Blackburne, Newark.—p. 751.
Industrial Eye Injuries and Compensation Claims Arising Therefrom. E. S. Sherman, Newark.—p. 761.
Lenticonus Posterior. E. J. Marsh, Paterson.—p. 769.
Mesenchymoma. W. Klein, New Brunswick.—p. 774.
*Vaginal Diphtheria: Review of Literature to Date and Report of Case. L. A. Eigen, West Orange.—p. 778.

Management of Peptic Ulcer.—Lewis believes that the points of greatest importance in the management of peptic ulcer are: (1) desirability of having control of the case in the hands of the family physician; (2) necessity for complete and conscientious cooperation by the patients; (3) importance of the vegetative nervous system in the peptic ulcer complex, and necessity for elimination of all mentally and emotionally disturbing elements from the patient's life; (4) routine control and management over a period of not less than two years, and (5) surgery, which at present is chiefly of value in affording a means of meeting certain emergencies.

Vaginal Diphtheria.—Eigen reports a case of vaginal diphtheria in which Klebs-Loeffler bacilli were recovered from the patient's blood nine days prior to death and were found in some of the internal organs at necropsy. A review of the literature on diphtheric vaginitis revealed certain interesting facts. Tabulation and analysis of the statistics obtained as a result of this review led the author to the following conclusions: 1. Vaginal diphtheria is uncommon. It occurs more often in adults than in children; it is rare in virginal adults, occurring most frequently in those women who have recently been delivered. 2. It is often secondary to clinical diphtheria elsewhere but may be, and frequently is, primary in the vagina. 3. The prognosis in adults is slightly better than in children. 4. Diphtheroids and Klebs-Loeffler bacilli are apparently normal inhabitants of the vagina in many cases. 5. In every case of vaginal discharge, if a definite diagnosis of gonorrhea cannot be made, diphtheria should be ruled out before the condition is labeled "nonspecific" vaginitis. 6. A definite diagnosis of diphtheria cannot be made without bacteriologic studies and, often, virulence tests are necessary. 7. In cases of vaginal diphtheria, the urine, and perhaps the feces, may act as prolific sources of infection. The excreta in these cases should be disinfected as in cases of typhoid. The urine and feces may wash off and mix with the diphtheritic membrane and exudate, and thus may really contain quite a number of virulent Klebs-Loeffler bacilli. The author concludes that diphtheritic vaginitis may occur at any age; the youngest patient reported was 5 months of age and died of heart failure due to toxemia. The oldest patient was a woman, aged 55. She also died. The duration of the disease varies from one to four weeks, as a rule, but may continue for as long as five months.

Oklahoma State Medical Assn. Journal, Muskogee

25: 411-460 (Oct.) 1932

Reactions and Results Obtained from Specific Vaccine Therapy in Chronic Infectious Arthritis. E. Goldfain, Oklahoma City.—p. 411.
*Low Back Injuries, with Particular Reference to Part Played by Congenital Abnormalities. F. D. Dickson, Kansas City, Mo.—p. 415.
*Arthritis. F. E. Dill, Oklahoma City.—p. 423.
Rheumaticosis. H. C. Graham, Tulsa.—p. 427.
Health Department and the Physician in Private Practice. C. E. Waller, Washington, D. C.—p. 430.
Occipitoposterior Position. D. Lowry, Oklahoma City.—p. 433.
Agranulocytic Angina: Report of Five Cases. J. C. Macdonald, Oklahoma City.—p. 437.
New Concepts of Liver Function: Report of Case of Primary Carcinoma of Gallbladder. I. MacKenzie, Tulsa.—p. 441.
New Field of Activity in Medical Practice. C. Puckett, Oklahoma City. —p. 445.

Low Back Injuries.—Dickson calls attention to the fact that congenital abnormalities of the lumbosacral articulation occur in approximately 35 per cent of all individuals, producing a structurally weak back. Clear roentgenograms taken in the proper manner will reveal the presence of congenital abnormalities, if carefully studied. When subjected to trauma the normal spine should and usually does recover under adequate treatment. When subjected to trauma the congenitally weak back returns to normal much more slowly and much less com-

pletely than does the normal spine. With a definite congenital defect present, if adequate conservative treatment does not result in relief and elimination of the disability, stabilization of the involved region is definitely indicated. In the author's clinic in 242 cases he has advised operation in 23.3 per cent of the lumbosacral cases and has actually operated in 13.3 per cent, with only two failures so far as he can determine. Operations have been performed in 118 of those cases in his series diagnosed as sacro-iliac, with no failures.

Arthritis.—Dill states that chronic illness is one of the greatest causes of poverty. Arthritis and rheumatic conditions certainly are a major part of chronic diseases and as such should be comparable with tuberculosis and cancer as problems of this generation. He discusses atrophic, hypertrophic, infectious, gonorrheal and tuberculous arthritis and gives the average symptoms in their diagnosis. The author also discusses drugs, vaccine therapy, physical therapy, surgery and diet in the treatment of arthritis. The author uses salicylates in acute conditions, in chronic cases associated with pain or during the time of acute exacerbations; arsenic in the hypertrophic type of arthritis; iron in secondary anemia and after acute symptoms have subsided; glandular extracts for hypertrophic arthritis, menopausal arthritis or lowered metabolism; and calcium, intravenously, in a tuberculous condition. He employs foreign protein therapy in the hypertrophic and infectious arthropathies and in those in which chronicity is marked; and stock vaccines, when no demonstrable foci are present or when the preparation of autogenous vaccines is impossible. The author uses physical therapy, such as massage, in the atrophic type of arthritis; radiant heat, in well nourished patients, in the hypertrophic or metabolic type; diathermy in acute arthritis and fibrositis; ultraviolet and infra-red rays in primary or secondary anemia; and the needle spray, to increase the blood supply, in the form of the common shower. He corrects deformities as soon as possible, drains the joint proper if pus collects, as it does in the gonorrheal type of arthritis, and gives autotransfusions in the polyarthritic and subacute conditions. The author gives the main requisites of Snyder's arthritic diet.

Tennessee State Medical Assn. Journal, Nashville

25: 383-430 (Oct.) 1932

Value of Various Common Immunizing Agents. H. G. Bradley, Nashville.—p. 383.
Comparative Study of Certain Xanthine Diuretics: Preliminary Report: Theophylline Calcium Salicylate and Theobromine Calcium Salicylate. A. R. Bliss, Jr., and R. W. Morrison, Memphis.—p. 387.
*General Use of Radiation Therapy. W. R. Bethea and H. D. Gray, Memphis.—p. 402.
Migraine, with Especial Reference to Certain Modifications. W. H. Witt, Nashville.—p. 409.
*Diarrhea: Troublesome Symptom. L. C. Sanders, Memphis.—p. 414.

General Use of Roentgen Therapy.—Bethea and Gray demonstrate the general use of radiation therapy by a review of twelve years' experience in 2,902 cases. They report the results and from them conclude that many malignant conditions treated early may be arrested. Late malignant conditions are made more comfortable in most instances and life may be prolonged from a few months to several years. Benign tumors that are sensitive to irradiation respond readily. Brain and cord tumors may be arrested and life prolonged for several years. Tuberculous adenitis and peritonitis respond well. They do not recommend roentgen therapy in pulmonary tuberculosis. Most skin conditions respond well when allergy is excluded. Uncomplicated glandular conditions and conditions of the uterus respond well. Chronic conditions should be carefully selected, as many do not respond to irradiation. Fungal conditions respond readily when treated early. Whooping cough is benefited more than any other condition in the respiratory group. Many acute conditions respond rapidly to irradiation. Blood dyscrasias are improved but not cured by irradiation, and life is prolonged in cases treated early. The more recent use of higher voltage is producing better results.

Diarrhea.—Sanders divides the etiology of diarrhea into allergic, dietetic, parasitic, neurogenic, systemic and gastro-intestinal groups. He discusses each group separately. He concludes that the normal stool is solid or semisolid. Several watery stools daily are the result of some functional disturbance of the gastro-intestinal tract. The treatment depends on the nature of the underlying cause. It is an unscientific and faulty clinical practice to treat diarrhea other than as a symptom of organic disease until every effort to find the cause is exhausted. In diarrhea due to allergy, the foods at fault can often be found by careful skin testing or by placing the patient on an elimination diet. Diarrhea due to faulty diet can be relieved by the addition of the necessary protein, carbohydrate or fat and by adding to this an abundance of food rich in vitamins and minerals. Amebiasis yields to specific treatment. The number of specific drugs in use permits wide choice and frequent change to meet the requirements of the individual case. In bacillary dysentery the treatment must be directed toward the patient's comfort as well as toward a check of the disease. Opiates in large doses to control pain and tenesmus, daily irrigation of the colon with a weak potassium permanganate solution and polyvalent antidysenteric serum to relieve symptoms are used by the author. The diet should be entirely liquid during the acute stage. Intravenous dextrose and saline solution by hypodermoclysis should be given daily. Balantidium coli infection is relatively rare and may be prevented by avoidance of contact with the excreta of swine. The treatment consists of acetarsone by mouth and irrigation of the colon with a 1:1,000 solution of quinine. For diarrhea caused by intestinal tuberculosis, the treatment is directed toward the checking of the general tuberculous process: rest, heliotherapy and a high caloric diet. In diarrhea due to carcinoma of the colon, the patient should be referred to the surgeon for treatment. In diarrhea of unexplained etiology, the treatment should be symptomatic while the search for the cause is continued.

West Virginia Medical Journal, Charleston

28: 433-484 (Oct.) 1932

Plea for Perineal Versus Other Excisions in Rectosigmoidal Cancer. S. G. Gant, New York.—p. 433.
Alleviating Pain and Shortening Labor. W. W. Point, Charleston.—p. 439.
*Treatment of Thyroid Intoxication. M. R. Reid, Cincinnati.—p. 452.
Social Insurance Impossible to Abolish When Once Established. E. H. Ochsner, Chicago.—p. 471.

Treatment of Thyroid Intoxication.—According to Reid, thyroid intoxication is a metabolic disease involving the whole organism. It is especially related to disturbances of the other endocrine glands and the sympathetic, parasympathetic and somatic nervous systems. In thyroid intoxication which requires operative treatment, iodine should never be used except during the preoperative and postoperative management. In a certain percentage of the toxic nodular goiters, the response will be harmful. In cases of exophthalmic goiter, radical resection of the thyroid is the therapy of choice. All nodules in the thyroid are potentially dangerous and, if persistent after the age of 25, should be resected. Clinically there is a vast difference between thyrotoxicosis due to diffuse changes and that due to nodular changes. Operating on pubescent and adolescent goiters is rarely indicated unless the disease becomes a clear cut case of exophthalmic goiter. Operating in cases of neurocirculatory asthenia and cardiac "effort syndrome" brings only discredit on the procedure of thyroidectomy. The basal metabolic rate should not be regarded as a certain index of thyroid intoxication. It has a positive but not a negative value. In some cases of "burned out" diffuse goiters and many cases of nodular goiters there may be serious cardiovascular disability when the basal metabolic rates are normal or subnormal. All cases of cardiac disability associated with nodular goiters, "toxic" or "nontoxic," should be subjected to a thyroidectomy. If thyroid intoxication occurs during pregnancy, the hyperthyroidism should be treated without considering the pregnancy. The mortality of thyroid surgery should be less than 1 per cent. Dissatisfaction with thyroid surgery is not due to the mortality rate but to poor judgment with respect to the selection of cases and to the amount and condition of the gland left. The reduction in size of diffuse glands due to the involutional changes brought on by the use of iodine makes it necessary to do more radical resections than heretofore in order to allow for the increased size and activity following the discontinuance of the use of iodine. The author describes and illustrates his operative technic, which is the typical procedure for an exophthalmic gland. He outlines the routine preoperative and postoperative treatment of patients.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Physical Medicine, London

7: 133-152 (Nov.) 1932

Chronic Rheumatic Joint Disease in General Practice: Part II. Treatment. P. Ellman.—p. 135.
Vitamin D Potency of Egg Yolk from Irradiated Hens. G. H. Maughan and Edna Maughan.—p. 137.
Treatment of Prostatitis by High Potential Currents. O. Parkes.—p. 138.
Diathermy Test to Establish Proof of Death. H. Bordier.—p. 140.
Recent Developments in Production of Hyperexia. B. D. H. Watters.—p. 141.
Nature, Properties and Uses of Infra-Red and Luminous Rays. A. Furniss.—p. 143.

British Medical Journal, London

2: 781-822 (Oct. 29) 1932

History of Physiology in Great Britain During Last Hundred Years. E. Sharpey-Schafer.—p. 781.
Ocular Manifestations of Lesions of Fifth Cranial Nerve. R. F. Moore.—p. 783.
Id.: C. M. H. Howell.—p. 786.
Intravenous Urography in Children. C. G. Teall.—p. 788.
Case of Syphilis (Gummata) of Heart. G. T. Burke and H. Stott.—p. 789.
Principles and Methods of Malaria Control in Assam. G. C. Ramsay and J. de la M. Savage.—p. 790.

2: 823-864 (Nov. 5) 1932

Disorders of Sympathetic Nervous System and Their Response to Medical and Surgical Treatment. E. Bramwell.—p. 823.
*Radiographic Investigation of Lumbar and Sciatic Pain. J. F. Brailsford.—p. 827.
Infective Eczemas of Scalp. G. B. Dowling.—p. 830.
Chronic Appendicitis in Shanghai. H. R. Friedlander, with note on roentgen examination by J. E. Bowen.—p. 832.
Unusual Case of Meningitis Associated with Hematuria. L. Margaret Masterman.—p. 834.
Congenital Absence of Head of Femur. A. Brownlee.—p. 835.

Lumbar and Sciatic Pain.—Brailsford states that, in the investigation of cases of lumbar and sciatic pain, anteroposterior and lateral roentgenograms of the lumbar and sacral spine, pelvis and hip joints should always be made. These may give an immediate clue to the cause of the symptoms. Congenital or developmental irregularities occur in a large percentage of cases and should not be ascribed as the cause of the symptoms until all other possible lesions have been excluded. In cases of injury to the back or pelvis, roentgenograms should be taken as soon as possible after the injury, and note made of any old as well as recent injury and the films kept for reference. Changes indicative of injury may be shown on the roentgenograms taken subsequently which were not present on the first roentgenograms. Acute lumbar and sciatic pain is most frequently associated with toxemia from some focus of septic absorption such as the teeth, colon, genito-urinary system, appendix, gallbladder and sinuses. Roentgenograms will often help in the discovery of such a focus. Roentgenograms of the teeth will show evidence of chronic septic absorption, though local symptoms and clinical signs may be absent. The essential feature of the radiologist's report on the teeth is that it is independent and unbiased. Paget's disease of bone and secondary deposits of malignant diseases may be discovered in the preliminary roentgenologic examination before there is any clinical evidence that such conditions exist.

Edinburgh Medical Journal

39: 657-696 (Nov.) 1932

Some Medical Heroes of Seventeenth, Eighteenth and Nineteenth Centuries. J. H. Ferguson.—p. 657.
Peripheral Neuritis. J. Collier.—p. 672.
*Some Points in Investigation, Prognosis and Treatment of Tubal Conditions, with Especial Reference to Insufflation and Roentgen-Ray Examination After Injection with Lipiodol. E. F. Murray.—p. 137.

Treatment of Tubal Conditions.—Murray believes that the operative treatment of cases of sterility implies also the use of the insufflation test. Sealed tubes in cases of sterility must be further investigated by roentgen examination after the injection of iodized poppy-seed oil to determine the site of the blockage and the possibility of its relief by operation. The operation of salpingostomy is aided by the simultaneous use of the insufflator; without such proof of patency at the time of operation it is a purely speculative procedure. The injection of iodized poppy-seed oil is invaluable in the diagnosis, prognosis and treatment (where patency is proved) of inflammatory conditions of the fallopian tubes.

Glasgow Medical Journal

37: 289-359 (Nov.) 1932

*Cervical Ribs. G. H. Edington.—p. 289.
Diabetes in Childhood: I. Etiology, Diagnosis and Prognosis. G. B. Fleming.—p. 314.
Id.: II. Treatment. N. Morris.—p. 321.
Id.: III. Coma. F. J. Ford.—p. 335.
Id.: IV. Significance of Blood Sugar Curve in Ketosis. Mary L. Gilchrist.—p. 340.

Cervical Ribs.—From the study of five patients with cervical ribs, which he reports, and a review of the anatomic and clinical literature Edington draws the following conclusions: 1. The presence of cervical ribs in the living person is suggested by a symptom complex, or syndrome, which, while not actually pathognomonic, is sufficiently characteristic to excite the suspicions of the clinician. 2. The syndrome comprises, usually, sensory nerve disturbance in and impaired power of one limb. In some of the cases vascular troubles leading, it may be, to a certain amount of gangrene are also present. 3. The nerve symptoms result from pressure or friction of the nerves of the lowest trunk of the brachial plexus against bone, or the fibrous band extending forward from the rib extremity; vascular troubles are almost certainly due to pressure on or irritation of sympathetic fibers in the lowest trunk of the plexus and not to direct action of the rib on the subclavian artery. 4. Roentgenologic investigation should be employed in all cases and should include enumeration of cervical vertebrae. 5. Should roentgenologic observations be negative as regards cervical ribs, the first thoracic rib, whether rudimentary or of normal form, should be suspected as the cause of the symptoms. 6. If symptoms are present, resection of the rib concerned should be performed and may be expected to be followed by cure. 7. Predisposition to and the occurrence of cervical ribs is explained by the natural peculiarity of ossification of the seventh cervical transverse process. 8. It is not definitely certain what, if any, part is played in the actual occurrence of the abnormal ribs by the position of the brachial plexus; viz., prefixed or postfixed.

Journal of Hygiene, London

32: 465-624 (Oct.) 1932

Investigation into Effect of Certain Factors on Child Health and Child Weight. G. C. M. McGonigle and P. L. McKinlay.—p. 465.
Rabicidal Antibody Content of Rabbit Immune Serum as Index of Acquired Resistance to Rabies Infection. G. Stuart and K. S. Krikorian.—p. 489.
*Comparative Bactericidal Action of Normal Serum, "Whole" Blood and Serum Leukocyte Mixtures; with Further Observations on Bactericidal Mechanism of Normal Serum. T. J. Mackie, M. H. Finkelstein and C. E. van Rooyen.—p. 494.
Granular "O" Agglutination in Paratyphoid B and Typhoid Fevers. A. D. Gardner and Edith F. Stubington.—p. 516.
*Qualitative or Quantitative Methods in Serologic Diagnosis of Enteric Infections? E. S. Horgan.—p. 523.
Utilization of Citrates and Fermentation of Cellobiose by Strains of Bacterium Coli Isolated from Human Feces. C. E. Skinner and H. G. Brudnoy.—p. 529.
Relation of Composition of Culture Medium to Formation of Endospores by Aerobic Bacilli. H. L. A. Tarr.—p. 535.
Simple Blood Tellurite Medium for Isolation of C. Diphtheriae. E. S. Horgan and A. Marshall.—p. 544.
Spermicidal Powers of Chemical Contraceptives: V. Comparison of Human Sperms with Those of Guinea-Pig. J. R. Baker.—p. 550.
Cancer Susceptibility in Relation to Color of Mice. C. C. Twort and J. M. Twort.—p. 557.
Bacterial Purification of Gasworks' Liquors: Action of Liquors on Bacterial Flora of Sewage. F. C. Happold and A. Key.—p. 573.
Epidemiology of Whooping Cough in London. P. Stocks, assisted by Mary N. Karn.—p. 581.

Bactericidal Action of Normal Serum and "Whole" Blood.—According to Mackie and his associates, normal "whole" blood and serum leukocyte mixtures may exert a bactericidal effect when the serum (or plasma) is inactive in this respect and may possess quantitatively greater bactericidal properties than serum (or plasma) when the latter is active alone; but such effects are relatively weak. Leukocyte suspensions may exhibit an initial bactericidal action on certain bacteria, but this is usually weak and is followed by a pronounced growth promoting influence on the surviving organisms. Under certain conditions normal "whole" blood and serum leukocyte mixtures are inferior to serum (or plasma) in bactericidal

power. This is observed when the serum (or plasma) is strongly active alone and is due not merely to an inhibition of the bactericidal action of the leukocytes but also to a lessened effect of the serum bactericidins. The comparative bactericidal power of normal "whole" blood or serum leukocyte mixtures on the one hand and serum or plasma on the other depends on the activity of the serum; when this is relatively weak, blood shows an enhanced action; when strong, blood is less active. The authors' observations apply to a wide variety of bacteria irrespectively of biologic species. Bacterial extracts possess marked inhibitory properties on the bactericidal action of serum (or plasma) but not to any extent on the bactericidal properties of the leukocytes, as evidenced by the approximately equal influence of such extracts on whole blood and serum, respectively. Dead bacteria in certain numbers produce inhibition of the bactericidal action of serum (or plasma) but exert a greater inhibitory influence on the reaction of "whole" blood. The authors tentatively suggest that when the serum is strongly bactericidal the killed organisms, on being phagocyted along with living bacteria, interfere with the intracellular destruction of the latter, which at the same time are protected from the serum bactericidins. They also give data regarding the time of maximum bactericidal action by serum toward various organisms and the occurrence of growth promoting action following an initial bactericidal effect.

Serologic Diagnosis of Enteric Infections. — Horgan observed that "normal" agglutinins for Bacillus typhosis and B. paratyphosus B appear to be conclusively of the O type. Such agglutinins appear to be of consistently low titers and are absent in many serums. Normal agglutinins for B. paratyphosus A have not been encountered. O agglutinins are readily produced by inoculation of a TAB vaccine and may rise to as high titers as those encountered during an enteric infection. It is impossible to fix any limit for residual O agglutinins in inoculated persons. The author confirms the value of examining for O agglutinins in enteric cases and points out some fallacies of a purely qualitative method. In conclusion he emphasizes the especial importance of accurate quantitative Widal reactions in the diagnosis of fevers in the tropics for the following reasons: 1. The common practice of TAB inoculation; e. g., government officials, immigrants in quarantine, and so on. 2. The difficulty of obtaining any reliable history from natives as to whether they have been inoculated and, if so, the time that has elapsed since inoculation. 3. The common occurrence of various obscure types of pyrexia simulating enteric infections in both normal and inoculated persons. As such cases are frequently outside the range of full laboratory facilities, the Widal reaction assumes proportionately greater importance in arriving at a diagnosis. A quantitative technic using both types of antigens (H and O) for each organism and carrying out agglutination to end-titer is alone capable of giving such assistance.

Journal of Tropical Medicine and Hygiene, London

35: 305-320 (Oct. 15) 1932

Mosquito-Borne Diseases in Southern Nigeria: III. Differences in Periodicity of Various Mosquitoes. D. Anderson.—p. 305.
Studies in Blackwater Fever. P. Brahmachari, R. Banerjea and U. Brahmachari.—p. 309.
Malaria in Zululand. P. H. A. Spencer.—p. 310.

Lancet, London

2: 877-928 (Oct. 22) 1932

The Debt of Preventive Medicine to Harvey and the College of Physicians. G. Newman.—p. 877.
Biologic Types of Diphtheria Bacillus and Their Clinical Significance. Helen A. Wright and A. L. K. Rankin.—p. 884.
Hemorrhagic Disease of the New-Born: Study of Twenty-Eight Cases. N. B. Capon.—p. 887.
*Tropical Ulcer as Deficiency Disease: Treatment with Injections of Calcium. L. J. A. Loewenthal.—p. 889.
Hypertrophic Pyloric Stenosis in Adults. M. Coleman.—p. 892.
Malignant Diphtheria: Treatment with Glucose and Insulin. H. E. de C. Woodcock.—p. 894.

Tropical Ulcer as Deficiency Disease.—Loewenthal states that tropical ulcer is one of the great causes of death and disability among African natives. There is little evidence in favor of a bacterial cause, whereas its etiology from the dietary point of view deserves consideration. Treated by daily intravenous injections of calcium chloride, the great majority of patients showed rapid healing. The author's daily intravenous injection is 15 grains (1 Gm.) of calcium chloride in 10 cc. of distilled water. For children, from 5 to 7 grains (0.32 to 0.45 Gm.) is injected intravenously, according to age. Local treatment consists of eusol dressings twice daily only. The first few injections usually cause almost immediately a disagreeable feeling in the mouth and at the site of the ulcer. This is by no means a disadvantage among native patients, who consider it a sign of the efficacy of the remedy. This treatment constitutes a definite advance, in that it is superior to all others both therapeutically and economically. This treatment has been given in approximately 500 cases of tropical ulcer. The author analyzes sixty-nine personally observed cases.

Medical Journal of Australia, Sydney

2: 557-588 (Nov. 5) 1932

Angina Pectoris as Allergic Manifestation, and Other Observations on the Allergic State and Its Treatment. D. W. C. Jones.—p. 557.
Relations Between Weight of Breast Fed Infants, Their Order of Birth, and the Yield and Composition of Their Mothers' Milk. H. S. H. Wardlaw and E. E. P. Dart.—p. 564.

South African Medical Journal, Cape Town

6: 615-646 (Oct. 8) 1932

Relationship of the Native to South Africa's Health. P. W. Laidler.—p. 617.
High Blood Pressure in General Practice. A. Raff.—p. 628.
Induction of Premature Labor. A. W. Burton.—p. 631.
Injuries of Elbow in Children. G. J. M. Melle.—p. 634.

Tubercle, London

14: 1-48 (Oct.) 1932

Further Note on Treatment of Tuberculosis with Turtle Vaccine. W. C. Fowler.—p. 1.
Atelectasis, Detelectasis and Apneumatosis. E. Fletcher.—p. 3.
Bronchial Length Changes and Other Movements. C. C. Macklin.—p. 16.

Chinese Medical Journal, Shanghai

46: 965-1070 (Oct.) 1932

Treatment of Spastic Colitis by Ephedrine: A Roentgenologic Study. Y. C. Soo and S. H. Zia.—p. 965.
*Garcinia Mangoustana in Treatment of Amebic Dysentery. M. Garnett and S. D. Sturton.—p. 969.
Addison's Disease in a Chinese: Case. J. L. H. Paterson.—p. 974.
Sarcosporidiosis in Man: Report of Case in a Chinese. Lan-Chou Feng.—p. 976.
Uterotubal Pregnancy. A. C. Siddall.—p. 982.
Spontaneous Pneumothorax in the New-Born. Kha T'i Lim.—p. 986.
*Cryptogenetic Splenomegaly (Banti's Disease): Review and Report of Cases from North China. J. F. McIntosh.—p. 992.
Presidential Address. Way-Sung New.—p. 1025.

Treatment of Amebic Dysentery.—According to Garnett and Sturton, the prices of drugs ordinarily used in the treatment of amebic dysentery render it desirable that a cheaper method be found for the benefit of poor patients. Garcinia mangoustana has long been used empirically in Indian and Malayan indigenous medicine for the treatment of diarrhea and dysentery. A tincture can be made from the dried husk of Garcinia mangoustana. This tincture, if exhibited in conjunction with emetine treatment, appears to act in some way as a useful adjuvant and to cut short acute attacks of amebic dysentery. Smaller doses of emetine are required if mangosteen is given simultaneously. The authors cannot state, pending further investigation, whether mangosteen has any action other than the known astringent action of some of its constituents.

Cryptogenic Splenomegaly.—McIntosh reviews the literature and history of the disease and presents an analysis of the records of fifty-three cases of cryptogenic splenomegaly. From these data he makes an attempt to reconstruct the picture of the onset and course of the disease. The disease seems to be identical with splenomegalies that occur in Algeria, Formosa, South China and the Philippines. It is probable that the chronic splenomegalic anemia, or Banti's disease, of Europe and America is the same disease, or that the occidental group contains at least some cases of this type. There are marked differences, as well as marked similarities, between the splenomegaly group and a corresponding group of primary cirrhosis of the liver. Separation of these two diseases seems justified, although the evidence does not support the assumption that their causes are distinct. The symptoms of the disease may be classified as primary and secondary. It is the latter group that is relieved by splenectomy.

Archivio Italiano di Chirurgia, Bologna

32: 557-660 (Oct.) 1932

Behavior of Pathogenic and Nonpathogenic Anaerobic Micro-Organisms in Peritoneal Cavity. G. Zampa and B. Galavotti.—p. 557.
Tuberculosis of Male Breast. G. Gullotta.—p. 605.
Cardiospasm, Dysphagia and Enlarged Esophagus: Esophageal Sympathicectomy. J. F. Recalde.—p. 613.
Pyelographic Examination in Chronic Simple Pyelitis. F. Virgillo.—p. 635.
*Cholecystoduodenal Anastomosis with Tubes of Absorbable Metal. P. Pannella.—p. 645.

Cholecystoduodenal Anastomosis with Tubes of Absorbable Metal.—In experiments on dogs Pannella has resected the common bile duct between two ligatures, created an anastomosis between the gallbladder and the duodenum by means of a magnesium tube, encircled by a flap of omentum, and obtained perfect communication through a permanent tube of connective tissue remaining after resorption of the magnesium tube within about twenty days. The operation is performed in a short time and without any serious traumatism. Furthermore, the danger of infection due to the newly formed duct is slight. No pathologic alterations or modifications were observed in the gallbladder, the bile ducts, the liver or the duodenum.

Policlinico, Rome

39: 1765-1808 (Nov. 14) 1932. Practical Section

First Case in Italy of Extirpation of Adenoma of Parathyroid in Patient with Generalized Fibrous Cystic Osteitis. C. Frugoni and R. Alessandri.—p. 1765.
*New Method of Enrichment for Research of Tubercle Bacilli. C. Frigimelica.—p. 1776.

Tubercle Bacilli.—Frigimelica places a certain amount of sputum in a beaker and shakes it in a few cubic centimeters of water. Enough saturated aqueous solution of trinitrophenol (dissolved by heat and filtered after cooling) is added to impregnate the mixture of sputum, which is stirred by means of a glass rod until the whole mass is thoroughly stained a bright yellow. Ten per cent solution of potassium hydroxide is added drop by drop until the entire mass is macerated and dissolved when slightly heated. A liquid is obtained in which the tubercle bacilli are uniformly distributed. In order to concentrate the bacilli, chloroform to the amount of one third of the total volume is added to the cooled mixture, which is either vigorously shaken or centrifugated for at least ten minutes. A whitish ring forms at the zone of separation between the homogeneous liquid and the chloroform and, in positive cases, is exceptionally rich in tubercle bacilli. In the author's experience, microscopic examination revealed a notable increase in the amount of bacilli as compared with the results of other methods.

Archiv für Kinderheilkunde, Stuttgart

97: 1-128 (July 22) 1932

Causes of Congenital Atresia of Small Intestine. F. Laessing.—p. 1.
Distribution of Sigaud's Structural Types Among Nurslings in East Prussia. G. Rehfeld.—p. 11.
*Criticism of Indican Test in Urine and Its Technic During Nursling Age. E. Mayerhofer.—p. 17.
Behavior of Micro Meinicke Reaction in Serum of Diphtheria Patients and in Diphtheria Serum. L. Feuerstein.—p. 26.
Fate of Children with Hirschsprung's Disease (Megacolon). K. C. Chaudhuri.—p. 29.
*Organic Acid Content of Urine in Diphtheria. J. Csapó.—p. 53.
Viscosity Studies in Nursling Age. J. Surányi.—p. 59.
*Nongonorrheal Vaginal Leukorrhea During Childhood: Leukorrhea with Pseudodiphtheria Bacilli. K. Paul.—p. 63.
Applicability of Electrocardiography in Pediatrics. P. von Kiss.—p. 72.
Changes in Bones in Photo-Ergosterol Toxicosis. O. Göttche and B. Kellner.—p. 76.

Criticism of Indican Test in Urine.—Mayerhofer points out that thirty years ago it was generally believed that the test for indican in the urine (according to Jaffé or Obermayer) was an entirely reliable proof for the intensity of intestinal putrefaction, but his investigations on this problem, reported by him from 1901 to 1913, revealed the following: 1. The qualitative indican reactions of the urine according to Jaffé or Obermayer take into account only one constituent (indole) out of the large number of substances that develop in intestinal putrefaction. This indicates that indicanuria alone is not an entirely reliable symptom for the estimation of intestinal putrefaction. 2. Indole and the many other putrefactive products of the intestine, for instance the important ethylsulphuric acids, may even be in contrast to one another in that in apparently strong intestinal putrefaction (much ethylsulphuric acid) there may be only a weak or an entirely negative indican reaction, and, on the other hand, in apparently slight intestinal putrefaction (little ethylsulphuric acid) there may be a strong indican reaction. 3. Glycuronic acid is able to bind all basic substances that are formed in intestinal putrefaction and it passes them into the urine in the form of paired glycuronic acids. 4. In adults as well as in older children who receive a mixed diet, the fluctuation of glycuronic acids in the urine is a much too susceptible indicator in the estimation of intestinal putrefaction. 5. There are qualitative glycuronic acid reactions: that of Tollens and, in the nitrate-free urine, that of Goldschmiedt. 6. In the nitrate-free urine of nurslings the glycuronic acid reaction of Goldschmiedt is advisable; it is a much more exact indicator of intestinal putrefaction than the indican reaction. 7. The urine of nurslings stands alone in that the indole appears irregularly, late and, as a rule, only in the severer cases of intestinal putrefaction. The author gives as the reason for reviewing these results the fact that reports in the recent literature seem to have overlooked some of the former literature and, although he is gratified that they corroborate his criticism of indicanuria in nurslings, he advises these workers to continue where former investigators left off.

Organic Acid Content of Urine in Diphtheria.—After calling attention to former investigations on this problem, Csapó states that the object of the studies reported in this paper was to determine (1) the organic acid content of the urine and (2) to what extent these values are influenced by antitoxic serum. He found that during the first few days of pharyngeal diphtheria there is a considerable increase in the elimination of organic acids in spite of administration of antitoxic serum. In diphtheritic laryngitis the organic acid elimination shows the same behavior as in pharyngeal diphtheria. In malignant diphtheria the organic acid content of the urine is likewise increased, but not in the same degree as in simple pharyngeal diphtheria, and in the later degenerative stages of malignant diphtheria the acid elimination is normal. Thus the author's investigations revealed that in the beginning stage of every form of diphtheria the organic acid elimination is increased. He thinks that this metabolic disturbance is due primarily to bacterial toxins. There is no parallelism between the pharyngeal process and the organic acid elimination, but younger children as a rule react to the infection with a milder local process and a more severe metabolic disturbance. The author also found that in several cases of follicular tonsillitis the organic acid elimination was never increased. Thus it seems likely that this simple chemical test may eventually have a diagnostic value, for if a diphtheria bacillus carrier should develop a severe tonsillitis, the clinical as well as the bacteriologic aspects may lead to an erroneous diagnosis. However, aside from such cases, the acid test is in its present form not sufficiently specific for differential diagnostic purposes, because in infections such as pneumonia and scarlet fever the elimination of organic acids is likewise increased.

Nongonorrheal Vaginal Leukorrhea During Childhood.—Paul first calls attention to the fact that examinations on large numbers of girls have revealed that, although gonorrheal leukorrhea is rare (from 0.1 to 0.3 per cent), nongonorrheal leukorrhea is comparatively frequent; that is, it occurs in from 10 to 20 per cent of girls. He then relates his observations on several girls, in two of whom he observed a vulvar diphtheria with fever and membrane formation. In two others the leukorrhea was not accompanied by fever and membrane formation but culture in Löffler's serum revealed again diphtheria bacilli that by animal experiment were proved to be not true diphtheria bacilli but only pseudodiphtheria bacilli. These observations induced the author to investigate this problem further. Examination of 135 girls with nongonorrheal leukorrhea convinced him that pseudodiphtheria bacilli are present in more than 50 per cent of these cases. He does not maintain that the pseudodiphtheria bacilli are the cause of this form of leukorrhea, but he considers them nevertheless an essential factor. He lists the following as the characteristics of this form of leukorrhea: (1) presence of pseudodiphtheria bacilli; (2) acute beginning of the leukorrhea; (3) comparatively rapid disappearance of the acute inflammation, followed by chronic leukorrhea with frequent relapses; (4) refractoriness to therapeutic measures. In approximately one fourth of the examined 135 cases the vaginal secretion was increased, but the vaginal

flora consisted of the normal rod-shaped forms. This form of leukorrhea occurs only during puberty and it is probably an abnormal reaction to a physiologic process. In a third group of children with leukorrhea, various pathogenic organisms were found.

Archiv für klinische Chirurgie, Berlin

172: 191-402 (Nov. 3) 1932. Partial Index

Amniotic Origin of Deformities of Extremities. H. Hellner.—p. 191.
Displacement of Intervertebral Disks and Its Effect. G. Schmorl.—p. 240.
*Rôle of Bacterial Flora in Development and Perforation of Duodenal Ulcers. A. J. Schmeil.—p. 286.
*Ewing's Bone Sarcoma. J. Borak.—p. 301.
Necrosis of Head of Femur After Traumatic Dislocation of Hip Joint. O. Dyes.—p. 339.
Tertiary Syphilis of the Breast. L. B. Josephowitsch.—p. 360.
*Pathologic and Theoretical Considerations on Osteodystrophia Fibrosa (von Recklinghausen) and Its Relation to Tumors of Parathyroid Glands. H. Hanke.—p. 366.

Bacterial Flora in Development of Duodenal Ulcers.—In order to evaluate the rôle of bacteria in the production of duodenal ulcers as well as in their perforation, Schmeil subjected fifty stomachs, resected because of an acute perforation of a duodenal ulcer, to histologic study. To exclude contamination, the resected specimens were at once placed in a 10 per cent solution of formaldehyde. Sections were stained with hematoxylin-eosin and, for the study of bacteria, with Gram-Weigert, Giemsa or Manson blue stain. In all there were 1,500 serial sections. The presence of bacteria was demonstrated in 94 per cent of the stomachs. They were particularly numerous on the surface of the mucosa in the vicinity of the ulcer. Examination of sections taken from other portions of the stomach revealed the existence of identical organisms. The author failed to observe tissue reaction to these bacteria, but he frequently found areas of inflammation in the absence of bacteria. In three stomachs no bacteria were found either in the ulcer or in the stomach wall. The author, therefore, concludes that bacteria do not play an active part in the formation of duodenal ulcers or in their perforations.

Ewing's Bone Sarcoma.—Borak raises the question of whether so-called Ewing's bone sarcoma is a separate and definite entity and subjects to a critical discussion its three supposedly distinguishing characteristics. These are a characteristic histologic picture, a typical roentgenologic appearance and, above all, a remarkable radiosensitivity of the tumor. Histologically considered the tumor in a round-cell sarcoma, according to the author, is in no sense different from the round-cell sarcoma of other tissues. In this opinion the author is supported by Borst and other prominent pathologists. Ewing's attempt to prove that the tumor was of endothelial origin was not successful. The author states that the term "endothelioma" was not acceptable to the American commission on bone tumors, which preferred to call it "Ewing's tumor." Ewing's idea of the histogenesis of the tumor is based on the finding of dilated capillaries and a starlike arrangement of cells about these capillaries. According to the author there is nothing distinctive about these histologic appearances nor is there any resemblance between these tumors and endotheliomas of bones and other tissues. The extraordinary rapidity of growth, destroying the bone not only in the width but also in the length, is characteristic. With regard to the remarkable radiosensitivity of the tumor, the author points out that this is quite characteristic of all rapidly growing functionally undifferentiated tissues. While denying that Ewing's bone sarcoma is a definite entity in itself, the author insists that due credit be given to Ewing for demonstrating that the tumor can be readily recognized in roentgenograms and more or less successfully treated by irradiation.

Osteodystrophia Fibrosa and Parathyroid Gland Tumors.—Hanke presents a careful histopathologic study of two typical, severe cases of osteodystrophia fibrosa or Recklinghausen's disease and speculates on the relationship of tumors of the parathyroid bodies to the bony changes. In both cases the tendency to exaggerated bone deposition on the one hand and to bone replacement by fibrous tissue on the other was much marked. The newly formed fibrous tissue exhibited a marked giant-cell proliferation. Bony changes characteristic for Paget's disease, namely, an irregular mosaic arrangement and periosteal thickening, were not observed. In both cases there were found bilateral tumors of the parathyroid bodies. In one the tumor was found to be an adenoma made up of eosinophil cells, in the other a cuticle cell adenoma. No noteworthy changes were found in any of the other endocrine glands. Calcium metastases were present in both and in one the characteristic, though rare, calcium deposits in the liver. With regard to the relationship of the parathyroid tumors or enlargements to the bony changes, the author feels that, in view of the favorable results obtained with surgical removal, Erdheim's theory that the enlargement is a purely secondary, compensatory phenomenon cannot be accepted without reservations. The newer experimental data, however, make it appear doubtful that the parathyroid enlargement is the sole or the essential factor. Characteristic changes of osteitis fibrosa were produced in a variety of ways. Changes in metabolism appear to play an important part, acidosis in particular. These alterations may provoke hyperfunction or dysfunction of the parathyroid bodies as regulators of calcium metabolism. A compensatory hypertrophy ensues, which, if continued, will exert a deleterious effect on the bony system. This hypothesis makes it possible to understand both successes and failures after surgical removal of parathyroid enlargements. The interrelationship of metabolic changes, bony changes and enlargement or tumor of the parathyroid bodies constitutes a complex problem awaiting further study and elucidation.

Deutsche Zeitschrift für Chirurgie, Berlin

237: 637-790 (Nov. 8) 1932

*Local Treatment of Postoperative Pain After Abdominal Operations. W. Capelle and E. Fulde.—p. 637.
*Clinical and Experimental Studies of Pain in Upper Part of Abdomen as Well as of Peritoneal Absorption and Secretion. L. Duschl.—p. 650.
Pronounced Hematuria in Cystic Pyelitis and in Solitary Cyst of Kidney. H. J. Lauber.—p. 695.
Difference Between Primary and Secondary Skeletal Tuberculosis and Its Value for Differential Diagnosis in Surgical Practice. H. Kraske.—p. 705.

Treatment of Postoperative Pain in Abdominal Patients.—Capelle and Fulde, in order to allay the postoperative pain with its undesirable effect on respiration, conceived the idea of combating it by means of a continued local anesthesia. Surgeons in the past depended on bandaging the wound and on the use of morphine to attain this effect. Tight bandaging has the effect of splinting, but at the same time of retarding respiratory excursions. The disadvantages of morphine are that it acts through its influence on the higher centers, depressing in particular the center of respiration. The combined effect is to render breathing shallow and to reduce markedly the vital capacity. Roentgenologically, the effect is seen in the abnormally high position of the diaphragm. A direct method affecting the pain locally would therefore seem preferable. The authors placed in dogs three hollow needles parallel to an abdominal incision. The needles were placed respectively subperitoneally, intramuscularly and subcutaneously, and from 5 to 10 cc. of a local anesthetic with epinephrine was injected five times a day into each needle. The abdominal incision healed by primary intention at the end of five days. Histologic studies revealed transient mechanical effects on the injected tissues. No areas of necrosis were present. The authors next applied the method in four clinical cases. The solution used was half the previous strength in physiologic solution of sodium chloride, to which were added ten drops of epinephrine for every hundred cubic centimeters of the solution. In the course of twenty-four hours, 10 cc. was injected five times into each needle. The treatment was continued for five days. No medication of any kind was given. The patients were free from pain and were not conscious of the incision. They breathed freely and coughed without restraint. Their bowels moved without recourse to enemas. The incisions were healed six or seven days after the operation. The observations of the American and English surgeons suggest that the disturbed respiratory mechanism after abdominal operations may lead to massive collapse of the lung and various other pulmonary complications. The authors suggest that their method of continued local anesthesia may solve this problem in a satisfactory manner.

Pain in Upper Part of Abdomen.—Duschl states on the basis of his experimental studies in dogs and of his clinical observations that origin, kind, intensity and distribution of pain are functions principally of the vegetative nerve centers. He

found that ligation or severing of blood vessels causes considerable pain. Areas in the peritoneal cavity poor in blood supply are less sensitive than areas rich in blood supply. The sensory nerve fibers of the diaphragm correspond to the fifth, sixth, seventh and eighth dorsal segments. Severing of the phrenic nerve did not diminish the sensitiveness of the diaphragm to mechanical trauma or to traction on it. Splanchnic anesthesia does away with the pain consequent on traction on the stomach, liver or the coronary ligament of the liver. Spinal anesthesia involving approximately the fifth and sixth dorsal segments controls the pain of spontaneous gallstone colic or that occasioned by traction on the viscera in the upper part of the abdomen or the diaphragm. Spinal anesthesia below the eighth segment has no such effect. Injection of the phrenic nerve with procaine hydrochloride did not influence the shoulder pain in cholecystitis. The author found that sectioning of both phrenic nerves did not diminish the absorptive power of the peritoneum. Apparently this function is not influenced by its motor innervation. Stimulation of intestinal peristalsis increased the resorptive power of the peritoneum. He likewise found that extensive flushing of the peritoneal cavity with suitable solutions favors the excretion of considerable amounts of crystalloid substances, particularly of nitrogenous substances as well as of bile pigments from the blood of icteric animals. The substances could be demonstrated in the return fluid. The author concludes that in grave icteric states due particularly to liver insufficiency the method of flushing the peritoneal cavity is of therapeutic value.

238: 1-128 (Nov. 22) 1932

*Pneumoroentgenograms of the Knee Joint. H. Schum.—p. 1.
Surgery of Foreign Bodies in Gastro-Intestinal Canal. A. Schlegel. —p. 57.
Development of Peptic Ulcer in Meckel's Diverticulum. G. Schaaff. —p. 78.
*Clinical and Experimental Studies of Development of Collateral Circulation in Occlusion of Inferior Vena Cava. W. Brackertz.—p. 88.
Differential Diagnosis of Vague Knee Disturbances with Contribution to Serology of Gonorrheal Diseases. H. Nagell and G. Gerlach.—p. 104.
*Echinococcus Cyst of Common Bile Duct. W. Schaack.—p. 109.
Contribution to Subject of Carcinoma of Jejunum. W. Porzelt.—p. 115.
Interilio-Abdominal Amputation of Lower Extremity. S. I. Riswasch. —p. 121.

Pneumoroentgenograms of the Knee Joint.—Schum has not observed any untoward effect in 114 injections of air into the knee joint in 98 patients. He emphasizes particularly the absence of pulmonary or cerebral emboli. He advises that injections be made slowly, the average amount for an adult being from 100 to 120 cc. of air. The author was not particularly impressed with the therapeutic effect of air injection on the morbid process. This occurred only occasionally, chiefly in nontraumatic, chronically inflamed joints, in which it possibly prevented adhesions due to interposition of fragments. The method was found to be most valuable in the diagnosis of injuries to the menisci. While the direct signs of a tear were only rarely demonstrable contrary to anticipations, certain secondary signs made it possible to diagnose the lesion in practically every case. Roentgen diagnosis was correct in 88.7 per cent of the fifty-seven cases in which an operation was performed because of the suspicion of a tear of a meniscus. Diffuse outline of the air bubble and still more its prolongation between the meniscus and the articular surface of the tibia is diagnostic of a tear in the lateral cartilage. Even more diagnostic of a cartilage tear is the shadow on the inner side of the joint, because here no shadow is to be seen between the cartilage and tibia in normal cases. Use of the method revealed many more lateral tears than were formerly believed to occur.

Development of Collateral Circulation. — Brackertz reports two cases of occlusion of the inferior vena cava in its lower third. In the first case occlusion was caused by the extension of a thrombus from the femoral vein. The second case presented at operation a rare anomaly; namely, a congenital absence of the lower third of the inferior vena cava and a simultaneous absence of the posterior cardinal veins. The author presents a discussion of the etiology and the symptomatology of occlusion of the vena cava inferior on the basis of the two cases described, his experimental work and a review of the literature. The vein may be occluded by a thrombus, it may be invaded by a tumor, or it may be compressed from without by a tumor, by chronically inflamed lymph nodes of the root of the mesentery, or by a tuberculous abscess. A few instances of congenital lack of development similar to the author's case have been reported. Among the first signs observed is that of edema of the lower extremities. This is followed, after some time, by the development of signs of compensatory collateral circulation. The author points out the interesting fact that, while most cases exhibit edema of the lower extremities and an enlargement of the superficial veins of the abdominal wall, there is a group in which edema is the only sign present. In still another group, in addition to the edema and the dilated superficial veins of the thighs and the abdominal wall, there exist signs of congestion in the intra-abdominal viscera. Clinical cases and animal experiments indicate that occlusion of the inferior vena cava in its middle third, that is, from above the junction of the renal veins up to the entry into it of the hepatic vein, is almost always fatal, death being caused by renal insufficiency. Ligation or occlusion in the upper third is always fatal. The author emphasizes the fact that occlusion of the vena cava inferior below the renal veins is a relatively harmless procedure. The vein has been, in occasional cases, torn and therefore ligated in the course of a nephrectomy without producing untoward results. Compensatory collateral circulation develops either through means of the superficial veins, the inferior epigastric, the superior epigastric and internal mammary vein, establishing a collateral circulation between the inferior and superior venae cavae, or by means of the deeper veins, the posterior lumbar and the azygos veins. In the latter case no dilatation of the superficial veins of the abdomen will be present. The author's animal experiments suggest that the question of development of a superficial or of a deep collateral circulation depends on the level at which the vein is ligated in its lower third. Prognosis here depends on the original disease, the level of occlusion, and the rapidity with which the occlusion is accomplished. The slower the process of occlusion, the greater is the chance for the development of a compensatory collateral circulation.

Echinococcus Cyst of Common Bile Duct.—Schaack reports the case of a man on whom he operated for obstructive jaundice, presumably caused by a stone in the common bile duct. Visualization of the duct proved difficult because of numerous inflammatory adhesions but was made possible by mobilization of the duodenum. When the thickened and dilated common duct was incised, there escaped a number of echinococcus cysts. These were scooped out with a spoon, the remaining cavity was sponged out with solution of formaldehyde, a drain was inserted and the duct was sutured about it. The duct was patent in both directions. There was apparently no invasion of the liver by the parasite. The author states that primary localization of the parasite in the bile duct is very unusual. The collected cases of Heinatz contain thirty-seven such cases up to 1928. Of these, twenty-five were reported by Russian authors principally of the transcaucasion region. The clinical picture is usually that of an obstructive jaundice. The prognosis is serious, a timely operation offering the best chance for a cure.

Klinische Wochenschrift, Berlin

11: 1817-1856 (Oct. 29) 1932

Pigment of Urine and Its Composition. M. Weiss.—p. 1817.
Action on Sugar Metabolism by Resorption from Rectum. J. Bauer and J. Monguió.—p. 1820.
Metabolism During Disturbances of Glycogen Storage. H. Beumer and A. Loeschke.—p. 1824.
Spleen and Female Genital Apparatus. E. W. Winter.—p. 1824.
*Relations Between Allergic Inflammation and Tuberculous Infection. A. Klopstock, W. Pagel and A. Guggenheim.—p. 1826.
*Value of Hofmann-Flössner's Method of Thrombocyte Count. E. Hartmann.—p. 1828.
Further Investigations on Thorium Storage. K. Ehrhardt.—p. 1830.
Paleness of Nails During Energetic Stretching of Fingers. E. Hoffmann. —p. 1833.
Determination of Blood Alcohol in Accidents Caused by Intoxication. R. Goldhahn.—p. 1834.
*Diagnosis, Etiology and Treatment of Dysbasia Angiospastica (Intermittent Claudication). T. Zlocisti.—p. 1836.
Isolation from Organ Extracts of Substance Influencing Circulation. K. Felix and A. von Putzer-Reybegg.—p. 1838.
Elimination of Prolan in Urine of Aged Women. B. Zondek.—p. 1839.
Central Blood Sugar Regulation: Influence of Various Pharmaceutic Preparations on Alimentary Hyperglycemia. F. Högler.—p. 1839.
Clinic of "Glandular Fever." H. Lehndorff.—p. 1840.
Use of Blood Group Test in Forensic Medicine. A. Hellwig.—p. 1843.

Allergic Inflammation and Tuberculous Infection.—Klopstock and his associates investigated the significance of the allergic local reaction for the resistance to superinfection.

They sensitized guinea-pigs against a chemospecific hapten, that is, against a diazotized atoxyl, then produced an anaphylactic local reaction, and at the site of this reaction introduced tubercle bacilli. On the basis of their observations they conclude that the local allergic inflammation as such is of no significance for the resistance to the secondary infection but that the specific alteration produced by the primary infection is responsible for the resistance to the superinfection.

Hofmann-Flössner's Method of Thrombocyte Count.—After evaluating the difficulties that are encountered in the thrombocyte count and after mentioning a number of investigators who have studied this problem, Hartmann criticizes the Hofmann-Flössner method. The thrombocyte numbers detected with this method are several times as large as those detected with other methods; namely, 760 thousand in normal persons. More than half of this number is accounted for by the small forms that are almost never perceptible in the smear. The dancing movements of these forms, their lack of tendency to sedimentation and the impossibility of staining them convinced the author that these forms are not thrombocytes but that they may be either impurities in the solution used in the Hofmann-Flössner method or degeneration products of the thrombocytes and erythrocytes. The correctness of the Hofmann-Flössner thrombocyte count is also contradicted by the observation that in disturbances in which a reduced number of thrombocytes should be expected the Hofmann-Flössner method indicates hardly any difference from the normal.

Dysbasia Angiospastica.—Zlocisti differentiates two types in the syndrome of dysbasia angiospastica (intermittent claudication). Type A usually develops in the sixth decade of life and shows predominance of arteriosclerotic impairment of the vascular walls of the leg and foot. Type B develops in the fourth decade and, perhaps as the result of an inferior vascular anlage, the spastic factor predominates. This type B can be influenced by a circulatory hormone that is produced in the pancreas. The author describes a simple method by which information can be obtained about the circulatory condition of the legs and by means of which dysbasia can be differentiated from other difficulties in walking, particularly those produced by flatfoot. The test consists in successive immersion of the feet in hot and cold water. In the case of normal circulation the feet become red following immersion into hot water, but if cold water is then applied they become pale for an instant and after that they turn pinkish. In persons with intermittent claudication of the B type (in the arteriosclerotic type A there is no reactivity to hot and cold) the feet become dark cyanotic following immersion into hot water and red if cold water is applied immediately after that. The author explains the mechanism of this test and states that it can be employed also to determine objectively the efficacy of a treatment, particularly of the hormonal treatment.

11: 1857-1896 (Nov. 5) 1932

Fundamental Problems of Energy Economy. H. Heller.—p. 1857.
Spleen and Chloride Economy. E. Schliephake and H. Probst.—p. 1863.
*Symptoms of Disturbances in Mesencephalohypophyseal System. R. Schmidt.—p. 1864.
Original Preparations and Substitutes. W. Heubner and M. Hundrieser.—p. 1872.
Behavior of Blood Pressure in Encephalography. A. Meyer.—p. 1873.
Digitalization and Carotid Sinus Pressure Effect in Electrocardiogram During Cardiac Insufficiency. F. Kisch.—p. 1875.
Phenomenon of Flocculation of Erythrocytes by Syphilitic Serums and Its Causes. W. Bachmann.—p. 1878.
Rejoinder to Preceding Remarks. G. Blumenthal.—p. 1878.
Influence of Diiodotyrosine on Insulin Hypoglycemia. K. Hinsberg and T. Thelen.—p. 1879.
Central Blood Sugar Regulation: Action of Cerebral Narcotics on Blood Sugar. F. Högler.—p. 1879.
Arabian Biography of Avicenna. P. Kraus.—p. 1880.

Symptoms of Disturbances in Mesencephalohypophyseal System.—According to Schmidt, the opinion gains more and more support that the hypophysis, particularly its posterior lobe, is anatomically as well as functionally connected with the hypothalamic centers of metabolism and that disorders such as diabetes insipidus and adiposogenital dystrophy are not so much disorders of the hypophysis only but rather disturbances of the hypophyseal mesencephalic system. Only for acromegaly can the underlying anatomic changes be detected in the hypophysis; namely, in the anterior lobe. The author then discusses the changes in shape, size and body weight of patients with acromegaly. He points out that acromegaly as a rule develops only in structural types that appear somewhat predisposed and thinks that in tall and narrow types the development of acromegaly is not likely. He states that enlargement of hands and feet may develop also in myxedema, but the two conditions can be differentiated in that the hands of a patient with acromegaly generally perspire considerably, whereas in myxedema the hands are dry. In regard to the behavior of the body weight he states that in acromegaly there may be an initial increase and later a sudden decrease. Diabetes insipidus as a rule leads to a loss of weight, but there are also cases in which, in spite of severe diuresis, there is no loss of weight. In adiposogenital dystrophy as well as in tumors near the hypophysis there may be a considerable increase in weight. The author further discusses the changes in the genital sphere, polyuria and polydipsia, other nervous disorders, sensibility disturbances, reflex anomalies, motor phenomena, disturbances in the sense organs, pain phenomena, particularly headaches and painfulness of joints and bones, and disturbances in the epidermoid organs, skin, hair and teeth. In discussing changes in the gastro-intestinal tract in mesencephalohypophyseal disorders he calls attention to the dryness of the tongue and the frequency of constipation. The temperatures of patients with acromegaly frequently are low, and they complain of feeling cold. The blood pressure seems to be rather low in most patients with mesencephalic hypophyseal disorders. The hormonal content of the blood is difficult to determine because of the many different hypophyseal hormones. The urine frequently contains large amounts of sugar, particularly in patients with acromegaly. The frequency of thyroidal disturbances is especially noteworthy among the complications with other disorders. The author gives special rules for the proper evaluation of the roentgenologic changes in the sella turcica and discusses the treatment. He points out that operative treatment has been successfully tried in acromegaly but that roentgen or radium treatments may likewise prove helpful. In regard to diabetes insipidus, he states that a salt-free diet is of no value but that purgatives may be useful on account of the constipation and because they divert the water elimination to the intestine. Diversion of the water elimination to the skin and prevention of thirst may be effected by hot air baths. The author directs attention to the antidiuretic action of pituitary extract and states that roentgen irradiations of the hypophysis have been reported helpful in diabetes insipidus. Lessening of the cerebral pressure by means of puncture of the corpus callosum counteracted the diabetes insipidus in a patient with hypophyseal dwarfism.

Medizinische Klinik, Berlin

28: 1519-1552 (Oct. 28) 1932. Partial Index

Treatment of Brain Tumors. N. Guleke.—p. 1519.
Injury of Blind Eye: Request for Compensation. L. Heine.—p. 1523.
Thyrotoxicosis Caused by Smallest Doses of Iodine or Thymol. H. Zimmermann.—p. 1524.
Simultaneous Cholecysto-Urography. T. Canigiani and K. Singer.—p. 1526.
Choice of Pneumothorax Needle: Technic of Pneumothorax Treatment. A. Kirch.—p. 1527.
Clinical Investigation on High Frequency and Franklinization. L. Isler.—p. 1528.
Clinic of Osteolipoma. G. Neugebauer.—p. 1531.
*Method of Simultaneous Counting and Differentiation of Leukocytes in Counting Chamber. M. Gutstein.—p. 1534.
Diseases of Optic Nerve. K. Vogelsang.—p. 1535.

Simultaneous Count and Differentiation of Leukocytes.—Gutstein employs for the differentiation of leukocytes a dye solution containing new blue and rhoduline violet, in the ratio of 2 to 1, dissolved in distilled water. After explaining why he employs these basic dyes rather than acid eosin, he describes the technic of his examination of the blood as follows: Blood is mixed in the proportion of 1 to 11 with the dye solution and then well shaken. During this procedure the erythrocytes are hemolyzed. After from three to five minutes the suspension can be put into the counting chamber and the leukocytes can be counted and then differentiated. The eosinophils can be recognized by the bluish black granules that form a vivid contrast with the bright red nucleus. The neutrophils show a colorless, finely granulated protoplasm and red nuclei. In contradistinction to the fixed preparation stained with the Giemsa stain, the nuclei in this method of staining appear as two, three or five vesicular formations, each of which may contain a nucleolus. The lymphocytes have a round, red nucleus

and a more or less wide rim of protoplasm that may appear unstained or somewhat reddish or may contain reddish granules. As a rule a nucleolus is also recognizable. The monocytes can be recognized by their characteristic nucleus, and particularly by the red protoplasm. The mast cells show large, violet red granules and a red or red violet nucleus. The thrombocytes are gray bluish and, because of their small size, can be readily differentiated from other types of cells. Differentiation of the rodlike nuclear cells as a subdivision of the neutrophils is not possible, but they can be classified according to the number of nuclei.

28: 1553-1590 (Nov. 4) 1932

Various Effects of Bilirubin I and Bilirubin II on Organism in General. L. Aschoff.—p. 1553.
*Encephalitis Following Chickenpox, Smallpox, Vaccination and Measles. F. Lucksch.—p. 1554.
Acute Poisoning with Potassium Permanganate. E. Hoke and R. Wächter. —p. 1558.
Use of Roentgenographic Observations in Obliteration Therapy of Varicose Veins. R. Kantor and W. Löwenfeld.—p. 1558.
Fracture of Base of Skull with Subsequent Suppurative Late Meningitis: Operative Cure. K. Andrassy.—p. 1560.
Histamine Iontophoresis and Its Therapeutic Significance. E. Rosenblueth-Ronald.—p. 1561.
*Disinfection of Diphtheria Bacillus Carriers by Means of Methyl Violet. A. Meyer.—p. 1563.
Validity of Bernstein's Formula for Heredity of Blood Groups. W. Fischer.—p. 1563.

Encephalitis.—Lucksch shows that the similar or identical histopathologic changes in the various forms of encephalitis developing after chickenpox, smallpox, vaccination or measles indicate that all these forms belong to one and the same group. He attempts to show that, on the basis of older as well as more recent observations on virus diseases, the assumption of a second virus is unnecessary for the development of nervous complications following these diseases. He reaches the conclusion that the development of the nervous sequelae is probably related to the steadily increasing predisposition to disease of the central nervous organs.

Disinfection of Diphtheria Bacillus Carriers.—After reviewing some of the methods formerly recommended for the disinfection of diphtheria carriers and after pointing out some of their shortcomings, Meyer describes his own method. He applies a 3 per cent alcoholic solution of methyl violet by means of a cotton compress to the tonsils and to the nasal mucous membrane. This solution not only spreads rapidly over the surface but also enters the folds and crypts. The only disadvantage of the solution is that it stains. The applications are made from two to three times weekly and sterilization is obtained generally after seven or eight days and at the latest after seven weeks. The disinfection is considered complete after three smears (taken at intervals of eight days) have proved to be free from bacilli. The procedure was effective in nineteen out of twenty carriers. In spite of this comparatively small material the author considers his method worthy of further trial, because of the high percentage of efficacy and because it is simple, does not involve dangers and can be carried out without great expense.

Münchener medizinische Wochenschrift, Munich

79: 1785-1824 (Nov. 4) 1932

Diagnosis and Therapy of Sciatica. H. Curschmann.—p. 1785.
Progress in Diagnosis and Treatment of Most Important Intoxications. E. Leschke.—p. 1786.
Two Epidemics Caused by Food Poisoning. W. Rimpau.—p. 1791.
*Behavior of Blood Platelets in Normal Persons and in Patient with Tuberculosis. C. Oestreich.—p. 1794.
*Experimental and Clinical Investigations on Oral Treatment of Diabetes with Insulin-Like Substances from Plants. H. O. Hartleb.—p. 1795.
What is Fact in Nutritional Theory of Excess of Bases? W. H. Jansen. —p. 1798.
Indications for Hospitalization of Children in Present Economic Crisis. E. Burghard.—p. 1799.
Cerebral Syphilis Following Symptom-Free Interval of Forty-Eight Years. R. Ginzberg.—p. 1801.
Cutaneous Carcinoma That for Two Years Was Considered as Varicose Nodule. C. Lang.—p. 1803.

The Number of Blood Platelets.—Oestreich points out that the functions of the blood platelets are not as yet fully understood but that recent studies seem to indicate that, in addition to their function in the coagulation of blood, they also play a part in the defense of the organism against microorganisms. For this reason it appears advisable to determine the number of platelets in all diseases in which immunity processes play a part. Studies on blood platelets are difficult because there is as yet no uniformity in the opinions on the normal number of platelets; but the large numbers detected by some of the recent methods are now recognized as erroneous, even by those who first described them (Lampert). The author employed one of the so-called direct methods in which the platelets are counted in the counting chamber following thinning of the blood with a thrombocyte conserving agent. He found the thrombocyte number of normal persons to be from 100,000 to 350,000, the smaller numbers being present in older persons. In active tuberculosis the platelets are as a rule considerably increased, but in the severest cases and also before death there may be a decrease in the platelets, which is probably the result of toxic inhibition of the function of the bone marrow, and this decrease sometimes concurs with leukopenia and anemia. After recovery from tuberculosis the thrombocyte numbers generally become rapidly normal. The author thinks that the thrombocyte number can be employed in the estimation of immunity conditions in a patient only when considered together with other factors, such as the blood picture and blood sedimentation.

Treatment of Diabetes with Substances from Plants.—Hartleb reviews the former investigations with vegetable substances resembling insulin. He then describes his own investigations on the efficacy of an orally administered fluidextract from the almost ripe pods and stalks of Phaseolus vulgaris (kidney bean). He found that in persons without diabetes the extract influences neither the blood sugar curve during fasting nor the alimentary blood sugar curve in the course of a tolerance test. Tests on eight patients with a mild form of diabetes revealed that the blood sugar curve during fasting was reduced in four of them but the alimentary hyperglycemia was influenced in two cases only. Toxic effects of the extract were never observed, even when ten times the therapeutic dose was given. Of ten patients with a mild, a medium severe or a severe form of diabetes treated with the extract, only three patients with a mild form showed an improvement of the carbohydrate metabolism. The author concludes that the extract can be tried in the treatment of mild forms of diabetes but that a favorable effect can be expected in only some of the patients.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

84: 587-833 (Oct. 18) 1932. Partial Index

*Rôle of Streptococci in Infectious Arthritis. A. Fischer and G. Wehrsig. —p. 659.
*Influence of Anterior Lobe of Hypophysis on Blood Sugar Content. F. Böhm.—p. 689.
*Physiologic Number and Morphology of Blood Platelets. W. Preiss. —p. 810.
*Relations of Calcium Metabolism to Pneumonia. C. E. Schuntermann. —p. 824.

Streptococci in Infectious Arthritis.—Fischer and Wehrsig state that the bacteriologic examination of the blood and of articular punctates of patients with chronic infectious arthritis or with acute polyarthritis gives negative results and that the serum of these patients is free from specific agglutinins against streptococci. Moreover, cutaneous vaccination with culture filtrates or with vaccines from streptococci does not give positive reactions in infectious arthritis; and complement fixing antibodies against streptococci are not demonstrable in inactivated serums of patients with arthritis. In the so-called foci of infection (tonsils, dental granuloma), streptococci are regularly demonstrable in patients with arthritis as well as in controls, and in the culture these streptococci show the same characteristics whether they come from patients with arthritis or from healthy persons. In reexamining Rosenow's procedure for the demonstration of elective localization, the authors were able to corroborate certain details of the method but not the theory of elective localization, at least not in regard to diseases of the heart and joints. A large percentage of inoculated animals developed arthritis, no matter whether the inoculated material came from patients with arthritis or from healthy control persons. A hemolytic streptococcus proved especially arthrotropic but could be demonstrated also in the foci of normal persons. The animal experiment proved that active immunization does not influence streptococcic infection. The authors think that the lack of direct demonstrability of streptococci in the blood and in the articular punctates speaks against the causal significance of streptococci, the more so

since in other septic conditions, such as endocarditis lenta, the pathogenic organisms are frequently demonstrable in the blood.

Influence of Anterior Lobe of Hypophysis on Blood Sugar Content.—Tests on rabbits convinced Böhm that the intravenous injection of 100 units of prolan produces a hyperglycemia. The intramuscular injection is less effective, and the subcutaneous administration of the same quantity has no effect whatever. The hyperglycemia produced by prolan reaches its maximum from twenty to fifty minutes after the injection and is still present after ninety minutes, but it can be suppressed by ergotamine. The injection of prolan also reduces the hypoglycemia produced by insulin. Glycosuria follows the administration of prolan only if the blood sugar content increases above 300 mg. per hundred cubic centimeters. Tests to determine the origin of the blood sugar following the injection of prolan revealed that injection of prolan is not followed by hyperglycemia if the liver is entirely free from glycogen. These observations indicate the possibility of an involvement of the anterior lobe of the hypophysis in metabolic regulation.

Physiologic Number and Morphology of Blood Platelets.—Preiss classifies the many methods that have been recommended for the determination of the number of thrombocytes into two groups, the first group including all those that indicate the number of platelets as being between 130,000 and 300,000, and the second group including all those that give the number of platelets at approximately 700,000. He points out that, if the rapidity of disintegration of thrombocytes is taken into consideration, it appears reasonable that the greatest numbers would be the more correct ones. The great difference in numbers is accounted for mainly by the small platelets, which, in the methods revealing the large numbers, amount to more then 50 per cent of the total. But the author shows that even in the second group of tests not all sources of errors have been eliminated and so he devised a new technic. Tests with this method convinced him that only the large and medium large blood platelets can be considered a physiologic constituent of the blood. He thinks that all other forms are disintegration products and he considers 350,000 as the normal number of platelets.

Relations of Calcium Metabolism to Pneumonia.—Schuntermann points out that the excitability of the muscles, of the sympathetic nervous system and of the terminations of the cerebrospinal motor nerves is largely dependent on the ionic milieu. Reduction of the calcium ions increases the irritability and, because of the motor unrest and irritability of patients with lobar pneumonia, the author investigated the calcium content of the blood of patients with lobar pneumonia. In order to be able to evaluate the results of the tests it was necessary to determine first the ratio between the pharmacodynamic calcium and the total calcium content of the serum. It was found that the pharmacodynamic portion of the calcium is constant in the blood of healthy persons. It is on the average 42 per cent and fluctuates between 40 and 45 per cent. In lobar pneumococcic pneumonia without manifestations of severe intoxication the pharmacodynamic portion of calcium is about like that of healthy persons. However, in cases with more pronounced intoxication, especially in those with motor unrest, the pharmacodynamic portion is reduced. Thus the increase in irritability can be traced to a reduction in the active calcium ions. Caffeine reduces the pharmacodynamic portion of calcium and for this reason caution is necessary in the administration of caffeine in pneumonia patients with motor unrest, because the restlessness may become intensified. Parenteral administration of calcium does not change the ratio between pharmacodynamic calcium and total calcium. It is therefore useless to attempt to counteract the decrease in calcium, following caffeine medication, with administration of calcium.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

103: 257-443 (Oct. 25) 1932

Fertility of Female Animals Following Repeated Injection of Testicular Substance. H. O. Neumann and K. Lange.—p. 257.
Investigations on Work Metabolism During Pregnancy. R. Hansen and Elisabeth Voss.—p. 279.
Studies on Structural Types of Three Hundred Puerperal Women. H. E. Scheyer.—p. 289.
Do Light Rays Influence Hormones? Action in Animals and Plants. H. Küstner.—p. 305.
*Behavior of Thrombocyte Numbers and Coagulation Time During Gestation. M. Franke and S. Horwitz.—p. 318.
Increase of Puerperal Thromboses and Embolisms in Women's Hospital in Basel. F. Koepplin.—p. 327.
Elasticity and Permeability of Membranes of Human Fetus. A. Hermstein.—p. 360.
Clinical Aspects of Pregnancy in Rudimentary, Atretic, Accessory Uterine Horn. K. Podleschka.—p. 369.
Developmental Differences in Binovular Twins (Compressed, Macerated Fetus and Mature Infant). E. G. Abraham.—p. 381.
*Rare Deformities in Region of Squama Occipitalis. H. Uebermuth.—p. 396.

Thrombocyte Numbers and Coagulation Time During Gestation.—Franke and Horwitz observed during pregnancy and delivery a physiologic reduction of the number of blood platelets with a relative increase in the large, young platelets and a normal absolute volume of thrombocytes. The coagulation time was found normal in 70 per cent of the cases, and in the other 30 per cent it was slightly increased or decreased. During the puerperal period the thrombopenia gradually disappears, so that in some of the puerperas the thrombocytes reach normal values within the first week after confinement, while in others more time is required. Nearly all puerperal women show, as a sign of increased thrombopoiesis, a greater number of the large platelets, but the volume of the thrombocytes and the coagulation time are normal. Observations on several women, in whom complications developed during gestation, revealed that the complications exerted no influence on the number, form or volume of the thrombocytes or on the coagulation time.

Deformities in Region of Squama Occipitalis.—Uebermuth describes peculiar deformities in a new-born female infant. The mother, aged 32, had had one premature birth, four abortions and one normally developed child. The infant whose deformities are described was born during the eighth month of gestation. It was 42 cm. long, weighed 1,800 Gm. (4 pounds) and, following a spontaneous delivery, it lived for about half an hour. In addition to rare anomalies of the occipital bone the child had diaphragmatic hernia, and the stomach, small intestine and spleen were in the thorax. The occipital anomalies were: (1) a bald spot that could be explained as a portion of skin that had persisted in the hairless stage; (2) a grotesquely developed Kerkring's ossicle (the fact that it was still in the cartilaginous stage and without any ossification indicates that it belonged to the primordial cranium); (3) a synostotically closed sutura mendosa; (4) a tripartite os incae; (5) the persistence of a slitlike medial, sagittal indentation of the upper rim of the tabular part of the occipital bone, which, because of its rhombic shape, had produced a sort of large fontanel; (6) a persisting opening of the fontanellar membrane where the sinus sagittalis is found directly under and coalesced with the galea. The author reaches the conclusion that these anomalies of the occipital bone are manifestations of persistence of fetal development at a comparatively early stage and that, as such, they give information about the plan which the development follows.

Zentralblatt für Chirurgie, Leipzig

59: 2737-2800 (Nov. 12) 1932

Phenol Camphor Mixture Not Injurious to Cartilage if Properly Mixed and Properly Introduced into Joint. E. Payr.—p. 2737.
Operation for Incisional Hernias. H. Hilarowicz.—p. 2746.
Tissue Death After Local or Conduction Anesthesia. E. Makai.—p. 2748.
*Serum Prophylaxis with German Anaerobic Serums. A. Dimtza.—p. 2752.
Surgical Sclerosing Method of Treatment of Varicose Veins. L. Moszkowicz.—p. 2755.
Denudation of Penis and Scrotum: Case. J. Dexelmann.—p. 2760.
Technic of Prostatectomy. K. Mermingas.—p. 2762.

Prophylactic Use of German Anaerobic Serums.—Dimtza reports the results of treatment of 175 cases of traumatic injuries at the Zurich clinic with the prophylactic and therapeutic use of German manufactured anaerobic serums. All patients were treated within the first hour after the injury. The wound was widely excised, thoroughly iodized and usually left open. Serum was administered simultaneously, to be repeated one or two days later in extensive muscle damage. The excised material was submitted to bacteriologic studies. In eight of the cases, gas bacillus infection was diagnosed both clinically and bacteriologically. Prophylactic serum treatment failed to save four patients from amputation. In four cases with insignificant injuries, gas gangrene developed but could be controlled. The author thinks that the prophylactic effect of these serums is not dependable and that the surgical treatment is of greater importance. The serum did not definitely

lower either the incidence of gas infection or the number of amputations. The results were no better than those previously obtained with the Swiss serums and the Pasteur serums. The possibility of a milder course may, with some reservations, be admitted.

Klinicheskaya Meditsina, Moscow

10: 233-306, 1932

Eye Diseases in Northern Caucasus. S. V. Ochapovskiy.—p. 233.
Nervous Regulation of Heart. B. F. Shirokiy.—p. 240.
Prophylaxis and Organization of Service in Agrarian Traumatism. A. H. Velikoretskiy.—p. 249.
*Pathogenicity of Bacterium of Bang for Man. I. I. Reznikov.—p. 255.
Bang's Disease (Brucella Abortus): Cases. N. N. Darkshevich.—p. 262.
Bang Bacterium Infection in Man (Brucella Abortus). Ya. S. Kon.—p. 265.
Chlorine Therapy in Grip. S. A. Feldshtein.—p. 270.
Skin Reaction in Abdominal Typhus. E. M. Gordon.—p. 272.
Roentgen Irradiation of Spleen in Paratyphoid Infections of Man. R. A. Golonzko and Ya. E. Shapiro.—p. 274.
Blood Picture in Tularemia of Man and of Experimental Animals. I. M. Rappoport.—p. 279.
Treatment of Tetanus. I. D. Zartsyn.—p. 281.
Methods of Evaluation of Results of Treatment in Watering Places. B. M. Kudish and S. I. Lurie.—p. 282.
Erythrocyte Sedimentation in Spotted Typhus. A. L. Bosin.—p. 290.

Pathogenicity of Brucella Abortus for Man.—Reznikov points out that not a single case of authentic brucella infection was observed among the workers of the collective farm "Gigant" in the course of two years of an epizootic of abortions among the cattle. Careful study of the entire gynecologic material of the farm revealed that the incidence of abortions among the women workers and the wives has actually diminished. The puerperal complications were of the usual type, not a single instance of brucella infection being observed. While the pathogenicity of the bacillus for man is an established fact, its incidence is very rare and the attitude of American authors who regard it as a social menace is, in the author's opinion, not warranted. Brucella is apparently a true zoonosis in spite of the marked dissimilarities in the clinical manifestations in cattle and in man. Since there is no specific treatment, prophylaxis becomes most important. Quarantine of the newly arrived cattle and isolation of those infected are necessary. Physicians should familiarize themselves with the various clinical aspects of the disease in human beings, particularly with the undulant character of the fever. The best prophylaxis against the infection in human beings is boiling of milk.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

76: 5326-5416 (Nov. 19) 1932

Diseases of the Eye in Infancy. H. J. M. Weve.—p. 5328.
*Rare Congenital Abnormality in Shape of Nucleus of Leukocytes. G. H. W. Jordans.—p. 5338.
Familial Deviation to Left of Leukocytes. G. C. E. Burger.—p. 5342.
Treatment of Pulmonary Tuberculosis with Simultaneous Bilateral Artificial Pneumothorax. H. Vos.—p. 5346.
Treatment of Parkinson's Disease by Means of Large Doses of Atropine. Tj. A. Vos.—p. 5357.

Congenital Abnormality in Shape of Nucleus of Leukocytes.—Jordans describes the case of a woman, aged 31, suffering from enteroptosis and asthenia. Examination of the blood revealed a congenital abnormality in the shape of the nucleus of the leukocytes: (1) Only two of thirty-four leukocytes studied had sufficiently segmented nuclei and (2) there was a large increase of weak immature, rod-shaped leukocytic nuclei. Pelger, who first reported this defect, has stated that it may occur in healthy patients and may be transmitted by either parent. The author states that the unusual shape of the nucleus was not caused by immaturity but by an abnormality of segmentation. This peculiarity substantiates the opinion of Naegeli and others that the fine alterations in the structure of the nucleus and protoplasm of the leukocyte are more important to blood pathology than the outer shape of the nucleus.

Hospitalstidende, Copenhagen

75: 1135-1146 (Sept. 29) 1932

*Changes in Blood Picture in Schizophrenia, Especially with Regard to Shifting to Left as Process Symptom. K. Hermann.—p. 1135.

Changes in Blood Picture in Schizophrenia.—Hermann's investigations in the main confirm those of Sagel and of Carrière on shifting to the left of Arneth's blood picture in schizophrenia and he thinks that this shifting, at all events when pronounced, must be regarded as a sign of a continuing process.

Hygiea, Stockholm

94: 785-832 (Oct. 31) 1932

Remarks on Treatment of Postencephalitic Conditions with Massive Doses of Atropine. L. Ehrenberg.—p. 785.
*Porphyrinuria. Vera Johnsson.—p. 797.

Porphyrinuria.—Johnsson reviews the knowledge of porphyrin and porphyrinuria and discusses the various theories as to the etiology of porphyrinuria. She has found thirty-two cases of spontaneous porphyrinuria in the literature, to which a personal case is here added.

Norsk Magasin for Lægevidenskapen, Oslo

93: 1137-1256 (Nov.) 1932

*Urinary Obstruction and Basis for Conservative Surgery of Kidney. E. Hjort.—p. 1137.
Experiences with Pirquet Examinations in One Thousand Patients. H. G. Dedichen.—p. 1183.
*Methyl Alcohol Intoxication and Acidosis. H. J. Ustvedt and A. Mohn.—p. 1191.

Urinary Obstruction.—Hjort reports seventeen cases of urinary obstruction, in nine of which nephrectomy had to be done on account of infectious organic changes. He questions whether these cases might have been accessible for earlier conservative treatment but concludes that early diagnosis would in most cases have been difficult, partly because of late symptoms, partly because of long symptom-free intervals in some instances. The combination of these intervals with grave organic destruction requires that patients with urinary obstruction should not be lost sight of after disappearance of the subjective symptoms, without determining that the obstructing cause has been removed. He points to the immediate favorable effect of nephrectomy in unilateral pyonephrosis, which shows the danger of pyonephrosis as a source of infection. While the danger of radical operations consists in reduction of the organism's reserve of functioning kidney parenchyma, the risk in conservative treatment lies in the maintenance of the source of infection, as seen in three of his cases. He illustrates the ability of the urinary organs to regain form and function after removal of an obstruction, and he shows the value of intravenous pyelography in establishment of the early stage of urinary obstruction.

Methyl Alcoholic Intoxication and Acidosis.—In Ustvedt's patient with stupor, vomiting and stertorous breathing, a considerable acidosis was established. Diabetes, nephritis and inanition were excluded. The case thus supports the view that, in methyl alcohol poisoning, an oxidation of the methyl alcohol to formic acid occurs and that the formic acid through the acidosis it produces is responsible, at least to some extent, for the appearance of the symptoms. Mohn says that ophthalmologically the case was characterized by a latent period of three days, followed by amaurosis, papillitis and then atrophy of the optic nerve and central scotoma.

Ugeskrift for Læger, Copenhagen

94: 1069-1090 (Nov. 10) 1932

Chronic Progressive Arthritis in Denmark (on Basis of Material of Invalidity Insurance Commission). H. C. Gram.—p. 1069.
*Investigations on Occurrence of Actinomyces in Mouth Cavity and Significance for Acute Form of Actinomycosis. O. Bjerrum and S. Hansen.—p. 1075.

Actinomyces in Mouth.—Bjerrum and Hansen found anaerobic Actinomyces in 27 of 112 specimens of pus from abscesses of the gums and in 20 out of 30 teeth with periodontitis. They report the 13 out of 72 cases of chronic and acute cervicofacial and other inflammatory processes in which Actinomyces was found in the pus; surgical treatment in these cases was supplemented by roentgen treatment and potassium iodide. The possibility is suggested that Actinomyces in pus from cases of parulis and granuloma on the roots of the teeth may explain the origin of the many cases of acute cervicofacial actinomycosis heretofore overlooked, because prognosis after ordinary surgical treatment is good, and that diagnosis and treatment of these acute and subacute cases, and particularly observation after treatment, might limit the number of chronic actinomycotic disorders.